15 Cents a Copy

The Oil and Gas Journal

PRODUCING REFINING MARKETING

Published Every Thursday TULSA, OKLAHOMA, SEPTEMBER 1, 1927 $6.00 a Year

SEMINOLE

The World's Greatest Oil Field

And

HUGHES BITS
DRILLED EVERY WELL

From surface to casing seat Hughes "Self-Cleaning" Cones have drilled 90% of the Hole in Seminole Field.

"At your Supply Store"

Conclusive Proof of 100% Performance

HUGHES TOOL COMPANY

Service Plants
Los Angeles, Calif.
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THE
JOHN CRERAR
LIBRARY

57 Years of Commercial Application of *Rubber* to Industry

Conveyor Belts
Elevator Belts
Transmission Belts
Amorite for Chutes and other resistance to abrasive wear.
Acidseal linings for resistance to corrosives
Air Hose
Acid Hose
Fire Protection Hose
Oil Hose
Water Hose
Suction Hose
Garden Hose
Pump Diaphragms
Flotation Chemicals
Packing

MUCH of the romance that centers about the development of modern industry is identified with the application of rubber products to production processes. To tell the story of the commercial development of rubber goods manufacture in its relation to the great field of industry as a whole, is to write the biography of Dr. B. F. Goodrich and the history of this Company during the past fifty-seven years.

The Goodrich organization early recognized the myriad possibilities of rubber in manufacturing equipment, and the importance of closer cooperation between the user and maker of such equipment. The success of this Company is reflected not only by the acreage of plants covered and the branch offices maintained in all parts of the world, but also by the diversity of the products manufactured, more than 30,000 different articles in all.

Industrial executives are invited to take advantage of the unusual service extended by Goodrich by having their engineers call upon ours when problems involving power transmission, conveying of materials, corrosion, shock insulation, erosion, abrasion or deterioration must be solved.

THE B. F. GOODRICH RUBBER COMPANY, Akron, Ohio
Established 1870

Goodrich *Rubber Products*

Plant in which Dr. Goodrich began operations in 1870

The Goodrich plants as they appear today

96 years of Oxweld service

THE OXY-ACETYLENE process of welding and cutting is a recent industrial development. And yet the Oxweld service men alone represent an actual total of 96 years of Oxweld service. Their welding experience is greater even than this, for every one of them was an expert welder before he was selected for the Oxweld service staff.

In addition, there are many in the Oxweld sales organization who started as Oxweld service men and who have all the added ability that this implies.

It is the combined experience of all these men that makes Oxweld service valuable to you. Not only can they teach you to operate the equipment efficiently, but their long contact with industry makes them able to spot operating wastes and to suggest the remedies.

Oxweld

WELDING AND CUTTING APPARATUS

OXWELD ACETYLENE COMPANY

Unit of Union Carbide and Carbon Corporation

UCC

LONG ISLAND CITY, N. Y.
Thompson Avenue and Orton Street

CHICAGO 3642 Jasper Place | STOCKS IN 39 CITIES | SAN FRANCISCO 1050 Mission Street

In Canada: Dominion Oxygen Company, Ltd., Toronto

OFFICES ON THE PACIFIC COAST · Los Angeles—Portland—Seattle

The Oil and Gas Journal, issued weekly by The Petroleum Publishing Company, 114-116 West Second Street, Tulsa, Oklahoma. Subscription price $6.00 a year; 15 cents a copy. Entered as second-class mail matter December 15, 1911, at th e postoffice at Tulsa, Okla., under the Act of March 3, 1879

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520504

For many years ETNA WELDED STEEL TUBULAR PRODUCTS have been the favorites of the oil and gas industry

ETNA

SPANG, CHALFANT & CO., INC.

GENERAL OFFICES, UNION BANK BUILDING

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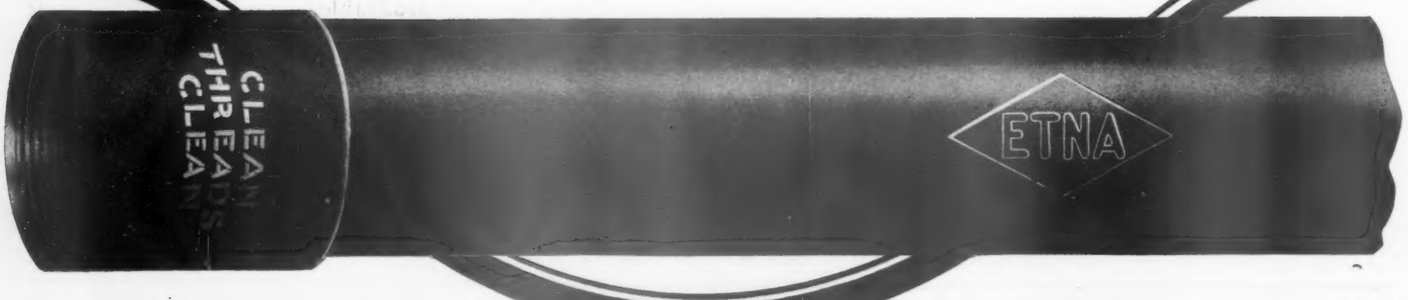
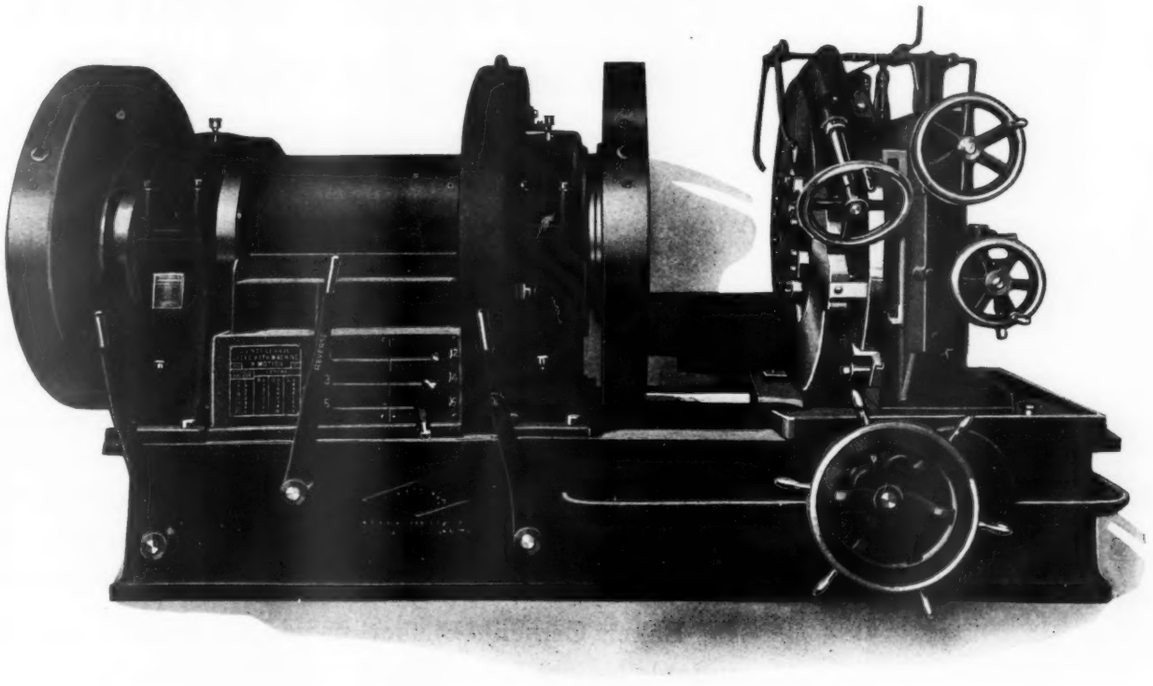
ESTABLISHED ~ 1828



ANNOUNCING

The New 16″ Landis Pipe Threading and Cutting Off Machine



Range 8″ to 16″

Number of speeds—8.

Gear Box with wide face, cut steel gears running in an oil bath.

A Reversing Mechanism is located in gear box and controlled by lever located conveniently for operator. The machine can be reversed in an instant without crossing belts or throwing a switch.

Powerful three jaw independent chucks both front and rear.

Flange Grips on rear chuck for making and breaking up flanges.

Reaming Tool locked for the reaming operation.

Easily changed from belt to motor drive.

Landis Die Head and Long Life Chasers employed.

Machine threads, cuts off, reams and chamfers pipe, casing and nipples.

This new Landis Pipe Machine is years in advance of any other. Powerful in construction it will give a long life of hard service. Repairs will be negligible. It will produce well-formed, full tapered threads fast and at a low cost.

Its installation will be profitable.

Write now for details.

Landis Threading Die Heads and Machines will be seen in actual operation at Booth No. 416, National Machine Tool Builders Exposition at Cleveland, September 19th to 23rd. We cordially invite you to visit our booth.

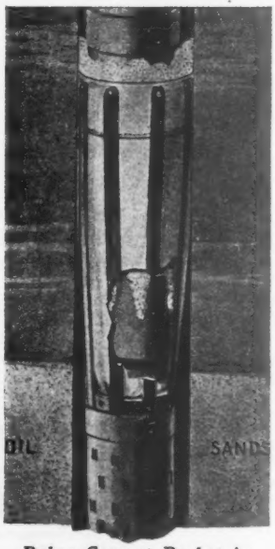
LANDIS MACHINE COMPANY

WAYNESBORO, PA.

DETROIT OFFICE: 5928 Second Boulevard

BAKER

Baker Cement Basket



Baker Cement Basket in the hole.

The Baker Cement Basket Saves One String of Casing

After the water has been shut off with the first string of casing and another water sand is encountered between that point and the oil bearing strata, by using the Baker Cement Basket, one string does the duty of two, the basket cementing off the water, leaving the oil sand free. Hydrostatic pressure at great depths sometimes exceeds the safety point of the pipe, and in this case, the water string is reinforced by forcing a sufficient quantity of cement between the oil and water strings, bringing the cement level up to the safety zone on the water string.

The Baker Cement Basket provides a positive and dependable way to force cement up around the outside of a long string of casing, and holding it there while the casing is suspended from the top. Write for descriptive bulletin.

Order "Baker Made" and Be Safe

COALINGA, CALIFORNIA — BAKER CASING SHOE COMPANY — TAFT, CALIFORNIA

Box L, Huntington Park, California

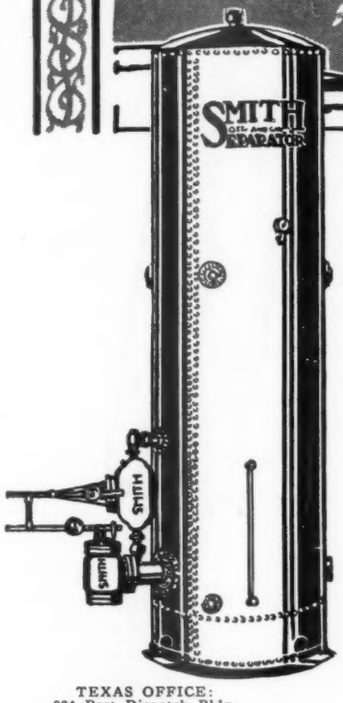
Export Sales Office: 25 Broadway, New York City.

Mid-Continent Representatives,
B & A SPECIALTY COMPANY

220 East Brady St., Tulsa, Okla. — 708 Keystone Bldg. Houston, Texas

Visit Our Booth (No. 113) at the Fourth International Petroleum Exposition, Tulsa, Sept. 24th to October 1st, 1927

A SMALL LEAK WILL SINK A GREAT SHIP



SMITH SEPARATOR
Stops Production Leaks

Loss of the "light ends" with your gas means a loss of gravity and production. These costly leaks can be eliminated by setting a Smith Oil and Gas Separator to put your oil in the stock tanks at casing-head gravity and the gas to the gasoline plant, the pipe lines or to your boilers.

These savings soon pay for the equipment and the separator goes on indefinitely piling up profits from these savings.

Leading producers the world over have standardized on Smith Oil and Gas Separators, because they know their value. And you never saw a Smith in a junk pile. There's apparently no wear-out to them.

There's a type for every service—a size for every need.

TEXAS OFFICE:
924 Post Dispatch Bldg.
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Oil Field Equipment Co.,
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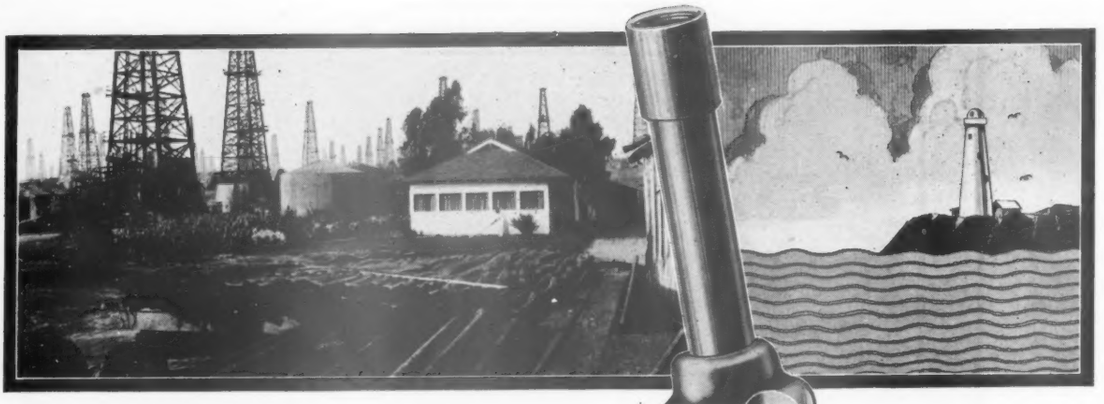
25 Bishopsgate.
Cable Address:
"Oleborers," London.

SMITH SEPARATOR COMPANY
Tulsa Okla.

If It's Worth Drilling For It's Worth Saving



Keep the-
WAVES
out of Your
TUBING

Wavy tubing is a total loss. Add to its value the cost of labor and lost production resulting from tubing accidents and the entire expense of dropped tubing usually runs into thousands of dollars.

You can protect each string of tubing at a cost of $90 to $120 by specifying a Guiberson Catcher for every well.

The Guiberson catches within 2 to 4 inches, every time, under any conditions. Fully patented.

"Better Be Safe Than Sorry"

THE GUIBERSON CORPORATION
Box 1106, Dallas, Texas
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402 W. First St., TULSA — 321 S. Osage St., PONCA CITY — 506 Trust Bldg., NEWARK, O.

GUIBERSON
BETTER BE SAFE GUIBERSON THAN SORRY

The No. 1A is the same as the No. 1 except that it is equipped with a ratchet for work where space is restricted.

No. 1A Nye Receding Pipe Threader, complete ..... $12.00 net
West of Rocky Mountains $13.50

Nye Chasers

Fit Nos. 1-1A and 2 Nye Receding Die Stocks

Each set is guaranteed in every particular. Will cut much easier than other similar dies.

No. 1, 1" to 1⅛"	$ .75 per set net
No. 1, 2"	1.25 per set net
No. 2, 2⅛" to 4"	3.60 per set net

Nye Bit Brace Reamer

Reams from ⅜ to 1¼ inches inclusive.
NET PRICE $1.17
ABSOLUTELY GUARANTEED

A LETTER FROM HARRY G. NYE

TO THE OIL MEN OF THE U. S. A.
Fellow Citizens:

There seems to be a good deal going on in China now-a-days, or going off, but I don't claim to know what it's all about. All I know about Canton is that it is where the flannel came from before we got too proud to wear flannel, and all I know about Peking is that, if they call that a dog, they ought to be ashamed of themselves.

Personally, if China wants to have a war, and shoot up a few laundries, it's all right with me, as long as they keep their war at home. I believe in China for the Chinese, as far as war is concerned. I believe if any nation anywhere wants to start a war, they ought to be made to start it at home, and keep it there.

Europe had a war once, and before they got through with it the Kellys and the Koskowskis and the Baumbergers and the Bendettis were all at it. They made Europe look like a park after a picnic. When it comes to destruction, troops are almost as bad as tourists.

Finally we had to go over and stop it, or they would have had us broke. Every time they fired one of those big guns it cost $4,211.39 of our money. Europe is just that liberal. They'll fight a war anytime, if America will pay for it. We yelled, "Give us liberty or give us death!" and jumped in, but all they gave us was some bum notes.

So, seeing the war in China is in China, I don't expect to take a hand in it. If China wants to get on the front page bad enough to have a war, it is all right with me. Every time they blow up a Chinese village it makes the geography just that much easier to read. I just say to China, "Go ahead and have a war if you want to"—and they are doing that very thing.

But now they've started calling names; and if you hear of a stranger with a slight limp and a bum lamp breaking up a chop suey joint on Clark street, you'll know the reason. As long as they left us Americans alone, it was all right. They could go right on with their little old war. But I want to tell them one thing: we Americans are all Americans, no matter what country we came from. And, when they start to calling us Americans "foreigners," they are going to hear something from

Yours truly,
HARRY G. NYE.

Otherwise Known As
THE NYE TOOL & MACHINE WORKS
4120-30 Fullerton, Avenue,
Chicago, Ill.

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HARRY G. NYE
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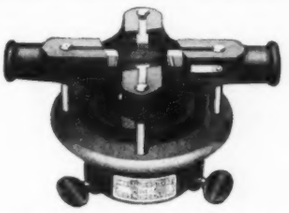
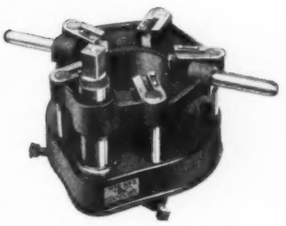
P. S. Maybe this whole trouble in China was started by the Chinese oil men because they couldn't get enough Nye tools. If anyone ever took Nye tools away from the American oil men, they would certainly start a revolution.



The rugged construction and few working parts account for the simplicity and durability of these Nye Receding models. They do the work easily and efficiently.

No. 1 Nye Receding Pipe Threader, complete ..... $9.60 net
West of Rocky Mountains $10.80



Nye No. 2 Geared Threading Device

Improved

Capacity 2½ in. to 4 in. inclusive. This tool has the same rugged construction as the No. 1 and No. 1A Nye Receding Stocks. A ratchet handle and a spider hub threaded for 1-inch pipe is furnished as standard equipment.
Net price complete $50.00
West of Rocky Mountains 55.00
FREE TRIAL—ABSOLUTELY GUARANTEED

Nye thin blade cutter wheel, made to fit all standard makes of pipe cutters, and guaranteed against breakage in use. Made both in smooth and knurled edge.

Nye Saunders Pipe Cutters

No. 1	$ 1.80 net
No. 2	2.70 "
No. 3	6.60 "
No. 4	10.80 "
No. 5	16.80 "

New Type Self-Locking Vises

No. 00	$2.82 net
No. 10	3.34 net
No. 20	5.00 net
No. 30	7.33 net

Patented

The New Nye Chain Vise

A handy, compact little vise, possessing maximum strength, while of minimum weight. Easily carried in tool kit. Equipped with standard jaws. Having features not found in similar vises, the double lever tightening device being above the bench, rather than below, insuring faster and smoother operation.

No. 51 Capacity ⅛ to 2½", Net $ 4.67
No. 52 Capacity ¼ to 4", Net 10.00
ABSOLUTELY GUARANTEED

Nye Barnes Pipe Cutters

No. 1	$ 2.25 net
No. 2	3.00 "
No. 3	5.00 "
No. 4	10.00 "
No. 5	15.00 "
No. 6	20.00 "

Bulletin No. 3

This is the third of a Series of Bulletins which will appeal to all refiners interested in reducing Operating Costs

VAPOR PHASE REFINING AND ACID TREATING COMPARED

The customary method of refining straight-run light petroleum oils by agitation with sulfuric acid was adapted, with minor changes of manipulation, to the handling of cracked distillates. Every Refiner knows this treatment has many disadvantages.

The sulfonating action on aromatic hydrocarbons and twofold reaction with the valuable olefins results first in a measurable volume loss, due to partial absorption by the acid; and second in a polymerization loss, which, although not marked by a reduction in volume, since the polymers are soluble in the oil, makes itself felt in a lowered yield of gasoline on rerunning. These losses vary somewhat with the distillates and the method of treating, but combined they can be conservatively estimated as from four to six per cent of the gasoline, and are in many cases considerably higher.

Moreover, the acid treatment, due to polymerization and discoloration, necessitates rerunning the product, with a consequent distillation loss of about four per cent. Even where the uncondensed gases are in part recovered as gasoline by compression or absorption, the cost is such as to make this loss a serious consideration at best. Much steam must be used in the rerun distillation in order to keep the temperature low and prevent effects deleterious to color and stability.

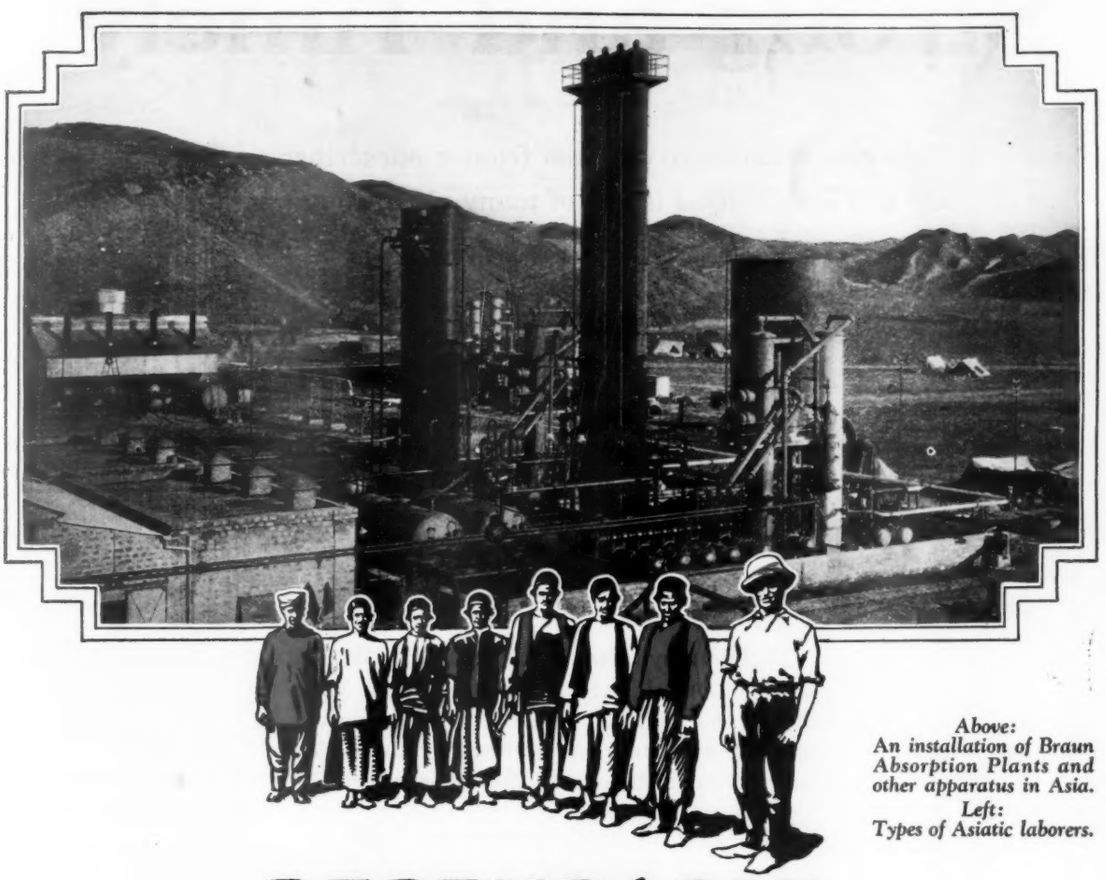
To these disadvantages must be added the difficulty of disposal or recovery of the acid sludge, the extra tankage required, and the danger and discomfort attendant upon the use of sulfuric acid.

Vapor Phase Refining, by polymerizing and removing only the diolefins, eliminates the losses due to the use of surfuric acid, it does away with the sludge nuisance and the steam distillation, and retains the full antiknock characteristics of the raw product. Where endpoint gasoline can be obtained directly from the cracking system, it is possible to refine the product before condensation, eliminating the rerun distillation entirely, thereby saving the expense of this step, and the distillation loss due to the rerunning of highly volatile cracked gasoline.

THE GRAY PROCESSES CORPORATION

961-975 FRELINGHUYSEN AVENUE

NEWARK, NEW JERSEY



Above:
An installation of Braun Absorption Plants and other apparatus in Asia.
Left:
Types of Asiatic laborers.

DEPENDABLE

In Persia and Burma, in Mexico and South America, in all parts of North America, BRAUN Apparatus is operating smoothly and economically, year in and year out. Once properly installed it requires no attention other than routine cleaning.....

C·F·BRAUN & CO
Manufacturing Mechanical Engineers
ALHAMBRA·CALIFORNIA
NEW YORK·DALLAS·TULSA

BRAUN

BRAUN

Strong and Timely

This quotation from a letter from a subscriber to The Oil and Gas Journal is one of many along the same line:

J. A. WARREN
First National Bank Bldg.
DENVER, COLO.

The Oil and Gas Journal,
Tulsa, Oklahoma.

Like many other readers of The Oil and Gas Journal I have frequently noted your strong editorials. These editorials naturally are on timely subjects and undoubtedly have great influence in the oil industry.

With kindest regards, I am
Sincerely,
J. A. WARREN.

ORDER BLANK

The Oil and Gas Journal, Tulsa, Okla.

You are hereby directed to mail The Oil and Gas Journal to me for ..... year. Enclosed find remittance $ .....

Classify my interests as checked by me.

.....Producing .....Refining
.....Equipment .....Marketing
.....Transportation

Name .....

Address .....

City .....

U. S. OR MEXICO	
One Year	$6.00
Six Months	3.00
Three Months	2.00
FOREIGN	7.00

Keep in Touch by Using This Coupon

TRADE YALE MARK
Chain Blocks

YALE Differential Chain Blocks for Wear

THE Yale Differential Chain Block has been on the market for many years but it is modern in every sense of the word.

It is built for wear and security—it looks trim and compact—the utmost in simplicity of design and workmanship.

Yale Differential Blocks, like other types of Yale Chain Block are built part by part in one plant—the Yale Plant. They are equipped with Yale quality chain, of exactly the same strength specifications as are the other blocks in the Yale line. They have won friends for two generations and have never lost one through failure to pass the most rigid of performance and safety tests.

Salesmen for Yale Chain Blocks—Spur-geared; Screw-geared; Differential—are ready to recommend the right Yale Block for your purpose without regard for their own particular interests. Ask one —or write giving required information.

The Yale & Towne Mfg. Company
Stamford, Conn., U. S. A.
Canadian Branch at St. Catharines, Ontario

YALE MARKED IS YALE MADE

Yale Differential Chain Block shown here; capacities ¼ ton up to 2 tons.

YALE Hoisting and Conveying Systems

Universally Adaptable

NUTTALL, double reduction, pump gear units are adaptable to every oil well condition. They are the most efficient type of pumping set up; and they will speed up all production operations.

Nuttall double reduction pump gear units can be used with electric motors, or with single or multi-cylinder oil or gas engines.

The "change gear" feature allows the speed of these units to be easily varied right in the field without any special equipment. This feature enables the operator to maintain the most efficient speed of the prime mover at all times.

The standard A.P.I. crank shaft lengths of 5 feet 6 inches, and 7 feet 6 inches, allows a sprocket to be placed on the shaft extension to drive the standard calf wheels or production hoist. A sprocket on the extension of the intermediate shaft can be used to drive a sand reel.

Send for our bulletin

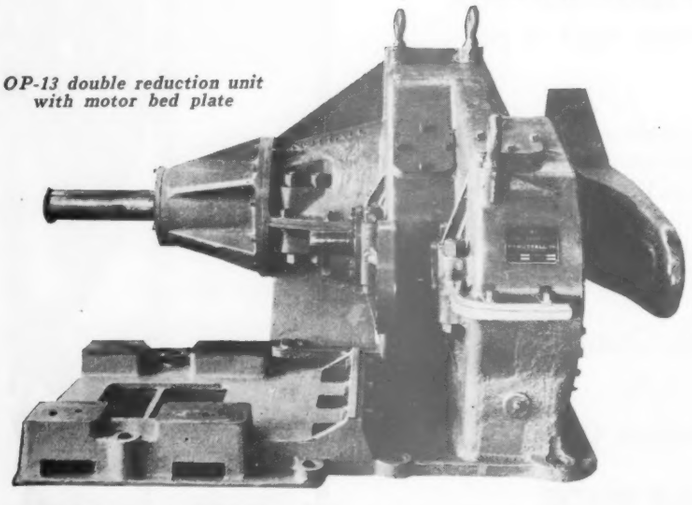
R. D. NUTTALL CO., Pittsburgh, Pa.

Houston, Union Nat'l Bank Bldg.

Los Angeles, 420 S. San Pedro St.

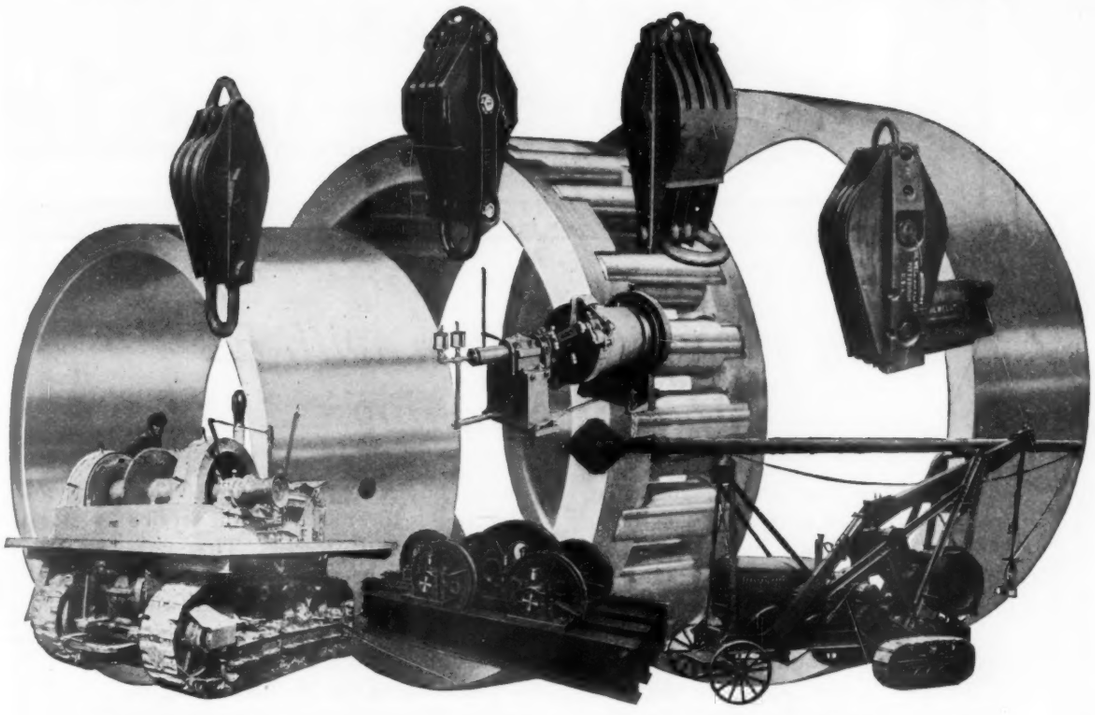
OIL WELL SUPPLY CO., *Authorized Distributors*

OP-13 double reduction unit with motor bed plate



Nuttall

BACK of BETTER SERVICE



The Standardized Oil Field Roller Bearing

Get them in the first place.

AMERICAN HEAVY DUTY TYPE "C"

Especially used in

Traveling Blocks
Crown Blocks
Reverse Clutches
Rotary Drives
Gear Drives
Drilling Machines
Winches
Hoists
and other heavy duty Oil Field equipment.

The really difficult jobs are being filled by the *Standardized Oil Field* Bearing. Plain bearings and other roller bearings are gradually going out of service where tremendous loads have proved them to be inadequate.

American Heavy Duty Type "C" Roller Bearings are steadily being adopted to make the types of machinery here illustrated equal to the increased demands of greater weight by giving smoother, long lasting, trouble-free performance; and to provide such machinery with a margin of satisfaction and a factor of safety well above even the present stiff requirements for improved and greater service.

Today, this bearing, made by a company that makes *only industrial bearings* (the hardest kind to make for the hardest service bearings have to meet) are back of better service in more drilling equipment of superior construction than any other type or kind of bearing.

American Roller Bearings get the tough jobs—tough jobs get *American Roller Bearings*—sooner or later. The better equipment has them. Their presence is an unmistakable sign of high quality in your equipment.

Try these bearings where you have had the most trouble in the past—for more successful operation in the future. Put your problems up to engineers who have been studying and meeting specific oil field problems. We can give you a sound solution and will be glad to do it.

Use them to replace plain bearings.

AMERICAN HEAVY DUTY TYPE "C"

Especially used by

American Well & Prospecting Co.
Boykin Machinery & Supply Co.
Hopper Machine Company
Latex Iron & Steel Works, Inc.
Lee C. Moore & Co.
Lucey Manufacturing Co.
Oil Well Supply Co.
Portable Rotary Rig Co.
Star Drilling Machine Co.

American Roller Bearing Co.
Pittsburgh, Penna.

AMERICAN HEAVY DUTY TYPE "C" ROLLER BEARINGS

MATHIESON
Industrial Chemicals

An Ancient Emblem with a Modern Meaning

THE "Fascisti", the present Italian governing party, takes its name from that famous bundle of birch rods, which since ancient times has denoted strength through unity.

The fasces might well be the symbol or trade mark of the Mathieson Alkali Works. If one rod bore the label "manufacturing facilities", another "distributing organization", another "traffic service", and if others bore the names of the various departments of this organization, the emblem would convey some idea of the purpose—the keynote—of the Mathieson policy.

In short, the entire Mathieson organization is bound into one harmonious whole, by a single, unified objective and purpose. That objective is loyal and faithful service to Mathieson customers. That purpose requires the perfect coordination of all branches of activity, and that inter-dependence of functions which insures all-round efficiency.

The unity of the Mathieson organization also suggests that customers' needs are well understood and that, therefore, customers' orders are sure to be intelligently executed.

By specifying EAGLE-THISTLE when ordering chemicals, you can be sure of receiving all the benefits that accrue to Mathieson customers as a natural result of a unified and complete manufacturing and distributing organization.

CAUSTIC SODA
LIQUID CHLORINE
BICARBONATE OF SODA
MODIFIED VIRGINIA SODA
SODA ASH
BLEACHING POWDER
ANHYDROUS AMMONIA
AQUA AMMONIA

EAGLE-THISTLE PRODUCTS

The MATHIESON ALKALI WORKS Inc.
250 PARK AVE. NEW YORK CITY

PHILADELPHIA CHICAGO PROVIDENCE CHARLOTTE CINCINNATI

Works: Niagara Falls, N. Y.—Saltville, Va.

(Sole licensee on the North American continent for the Hypochlorite Process of refining Petroleum)

See our exhibit, Booth No. 89 Chemical Industries Exposition

Deal Direct with the Manufacturer

Agathon Enduro Stainless Iron is an electric furnace product, thus assuring absolute uniformity.

Enduro Stainless Iron

Defies the Attacks of Sulphides and Sulphur Compounds

WITH the introduction of Agathon Enduro Stainless Iron, maintenance and repair costs in cracking plants can now be greatly reduced. This remarkable iron resists the attacks of sulphides and sulphur compounds and is ideal for seamless tubes and other metal parts in places where these compounds are present.

Agathon Enduro Stainless Iron has not only greater strength at ordinary temperatures, but will withstand much greater pressures at operating temperatures. It is easily worked—can be readily machined, forged or drawn—and yet possesses a hardness that resists wear and abrasion.

Get the assistance of our metallurgists in adapting this metal to your requirements. This service is free.

Agathon Enduro Stainless can be — Spun, Forged, Welded, Riveted, Machined, Cold Worked.

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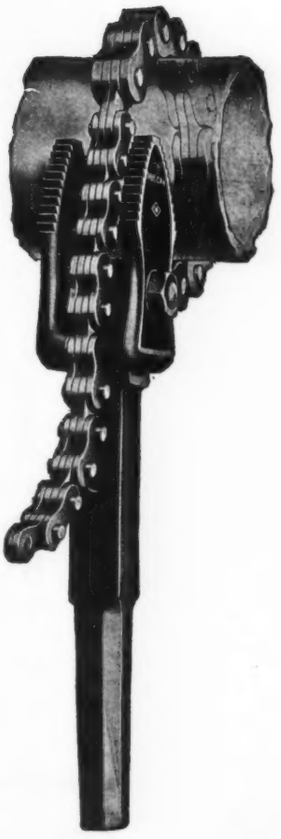
Are you using No. 115½? Chain has *Certified* strength of 30,000 lbs. Capacity up to 7¾". *Ask for literature.*



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SPROCKET CHAIN

SS-40 Plus and SS-124 Plus

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IN the treatment of distillate for separation of lubricating oils from by-products, low temperatures must be rigidly maintained. The Vogt exhaust steam refrigerating machine and Vogt standard chillers is the combination which, through years of service, has proved most satisfactory for this purpose.

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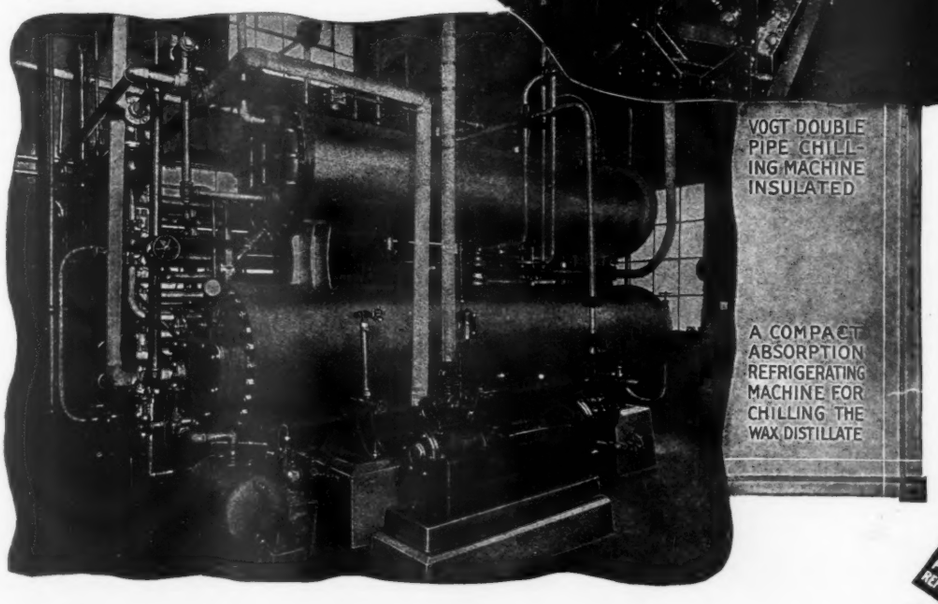

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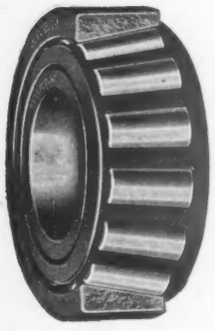
Timkens on Novo Crankshafts



There are no tougher bearing jobs than carrying gas engine crankshafts. On the crankshaft of the Novo engine Timken Tapered Roller Bearings take the thrust, the shock, the speed —with virtually wear-proof capacity—with no auxiliary parts, or compromise. And they take out all possible friction.

On the tapered, *POSITIVELY ALIGNED* rolls, and electric steel surfaces of Timken Tapered Roller Bearings, the Novo crankshaft turns smoothly and rigidly. Main bearings, once the most swiftly deteriorating parts in an engine, are given longest life!

THE TIMKEN ROLLER BEARING CO.
C A N T O N , O H I O

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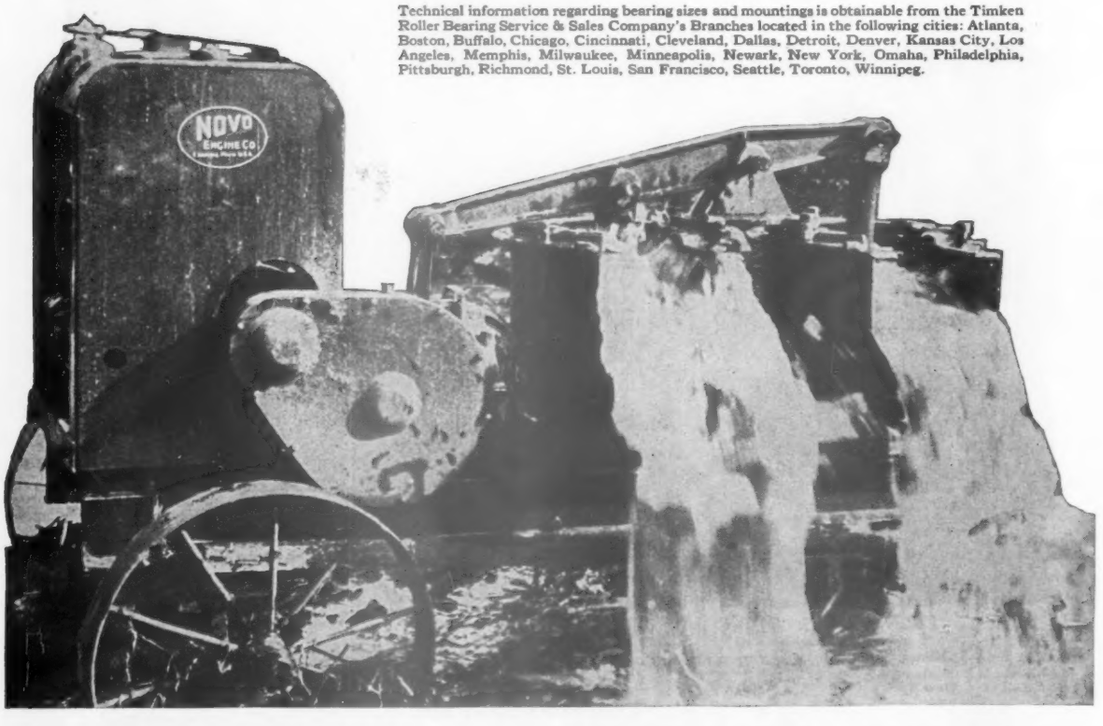

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GEARLESS REVERSIBLE Countershaft Clutches

THE ANSWER TO THE REVERSE CLUTCH PROBLEM—

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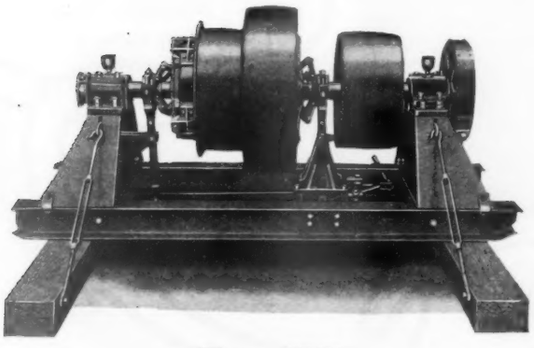

Type "D"

Mounted on a steel frame and skids, the entire unit is portable. It is adjustable by the use of turnbuckles. The two idle pulleys, forward and reverse, are mounted on *Timken Tapered Roller Bearings.* A neutral brake is provided, which is operated by a foot pedal conveniently located on the derrick floor.

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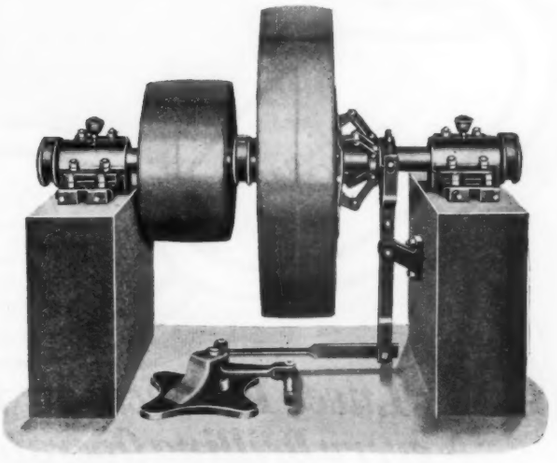
for pumping Powers



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—Give ideal drilling motion.
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—Stall when tools stick — same as steam.

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YOUNGSTOWN

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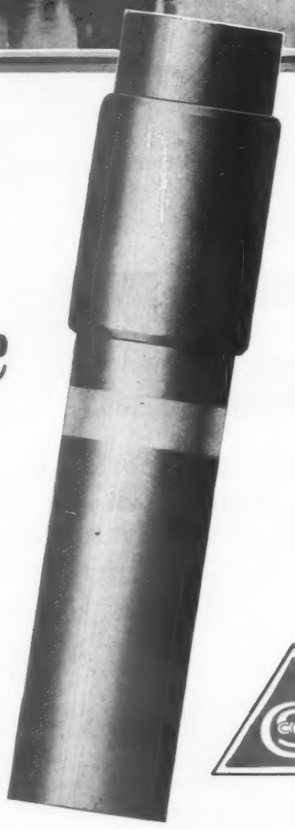

The photograph shows the first trainload of Youngstown 20-inch steel pipe leaving Youngstown for use in the Empire Gas & Fuel Company's gas line from Amarillo to Wichita, Kansas. Empire is putting into this line more than 400 million pounds of pipe. The Empire Companies have been large users of Youngstown pipe. They know from experience that every pound of Youngstown pipe that goes into an installation will deliver full value.

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Little River Curtailment Big Factor

Highest daily average estimated production in 1926, week ended Dec. 25, 2,385,139 bbls. Lowest in 1926, January 30, 1,915,960 bbls.

Making Agreement Effective Will Aid Conditions. Otherwise, Crude Price Readjustment May Be a Result

By Andrew M. Rowley

Highest daily average estimated light oil production in 1926, week ended Dec. 25, 1,797,349 bbls. Lowest in 1926, Jan. 30, 1,371,600 bbls.

Two matters having a most important bearing upon the crude petroleum situation throughout the Mid-Continent area at least, with a probable reflection in all other sections of the country, are up for decision this week—the first being whether the agreement limiting the production of wells in the Little River Pool, south of Seminole, in Oklahoma, to 100 bbls. daily each will be made effective and the second being the attitude of operators in the Pecos County area on the question of proration of runs. Under the Seminole area curtailment agreement, when the second well in the Little River was completed, the discovery well and all others were to be shut in to 100 bbls. daily. Two wells were completed in the pool last Saturday and, allowing the wells to produce for three days, which would be permitted to ascertain their potential production, curtailment of their production and of that of the discovery well should become effective about Thursday of this week. On Tuesday the three wells totaled more than 12,000 barrels. Under curtailment this output would be shut down to a total of 300 bbls.

If the curtailment agreement is made 100 per cent effective, operators in the Mid-Continent area feel one of the greatest menaces to the stability of the market will be removed. If production of the wells in the Little River Pool is not curtailed as per the agreement, and are permitted to produce to capacity, it is believed in circles in close touch with conditions, such action will result quickly in a readjustment of the crude price schedule.

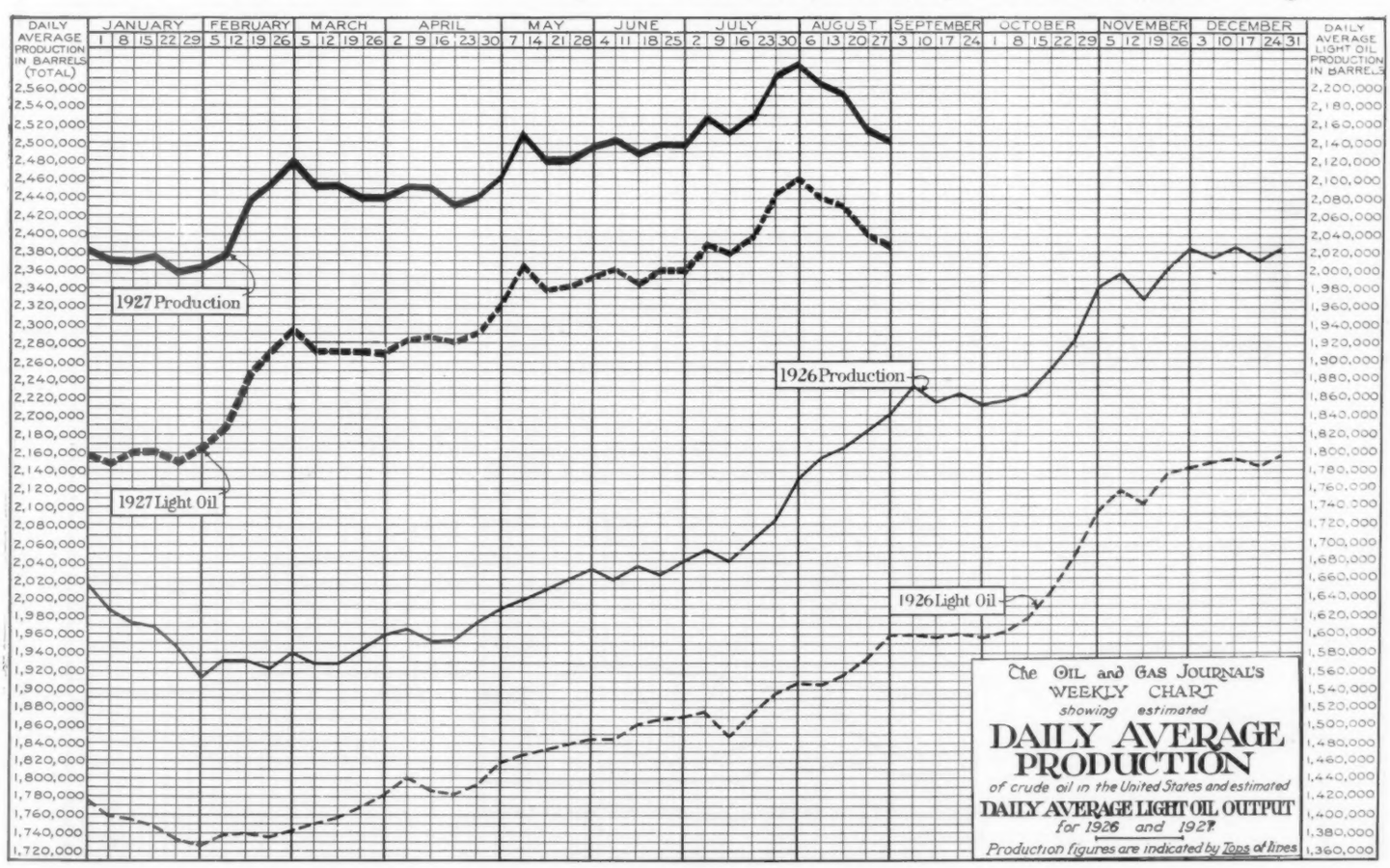
West Texas production continues to mount. Operators are to meet Friday of this week to consider the proration of runs in Pecos County. Any action taken which will curtail production in that area will aid the general situation, but operators cannot be blamed from considering the question from the angle of their own personal interests. It seems probable now an increase in production will be registered during this week as the average of the Seminole area early this week was higher than the average for last week and Seminole recently has been responsible for the declines recorded.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in the United States for week ended August 27, and a comparison with the previous week follows:

	Aug. 27		Aug. 20	
	Light	Heavy	Light	Heavy
Oklahoma—				
Tonkawa	19,770	.....	19,615	.....
Burbank	37,845	.....	38,440	.....
Other Osage Fields	31,215	.....	31,215	.....
Cushing and Shamrock	21,205	.....	21,415	.....
Bristow and Eastern Bristow	25,110	.....	25,470	.....
Cromwell	12,245	.....	12,310	.....
Garber	10,575	.....	11,005	.....
Blackwell-Braman	9,515	.....	9,605	.....
Seminole	436,115	.....	451,895	.....
Wewoka	15,540	.....	17,235	.....
Northern Miscellaneous	112,515	.....	112,895	.....
Southern Fields	66,210	.....	66,425	.....
Total Oklahoma	797,860	.....	817,525	.....
North Louisiana	45,045	9,800	46,930	9,600
Arkansas	22,925	80,015	23,325	81,205
North Central Texas	158,843	.....	158,315	.....
West Texas	171,315	.....	163,487	.....
Texas Panhandle	101,425	.....	98,695	.....
East Central Texas	31,705	.....	31,770	.....
Kansas	105,325	.....	104,410	.....
Total Mid-Continent Area	1,434,443	89,815	1,444,467	90,805
Gulf Coast	.....	136,775	.....	136,233
Southwest Texas	.....	32,075	.....	32,560
Eastern	114,000	.....	113,000	.....
Rocky Mountain Area	75,297	.....	79,909	.....
California—				
Santa Fe Springs	40,500	.....	40,500	.....
Long Beach	91,500	.....	91,500	.....
Torrance	4,000	17,500	4,000	17,500
Huntington Beach	67,500	.....	67,500	.....
Dominguez	15,000	.....	15,000	.....
Rosecrans	8,250	.....	8,500	.....
Inglewood	20,000	12,500	20,000	13,000
Ventura Avenue	47,000	.....	48,000	.....
Seal Beach	59,000	.....	56,000	.....
Remainder of State	55,000	186,000	55,000	186,500
Total California	407,750	217,000	406,000	217,000
Total United States	2,031,490	475,665	2,043,376	476,598
Grand Total		2,507,155		2,519,974

Total Decrease, 12,819 Bbls.; Light Oil Decrease, 11,886 Bbls.



No Improvement in Group 3 Market

Further Price Concessions on Gasolines From Many Oklahoma Refiners. Natural Gasolines Firm. Fuel Oils Slow

By W. T. Ziegenhain

Although the Oklahoma (Group 3) refined oil market did not witness a further general recession in prices, there was no inclination to attempt to force it upward. Refiners realized there was plenty of gasoline and most other oils available at all refinery centers and offers were made with the hope of reducing stocks to a minimum without making additional price concessions. With the greater part of the principal consuming season over, there is a lesser chance for increased prices for the immediate future at least. The decline in the Seminole crude oil production came too late to cause an upturn, but it no doubt helped to hold gasoline prices above 6 cents and kept the fuel oil market from a further break.

Kerosene was unchanged, but a purchase of a million gallons in Louisiana for export relieved the market there and helped to add confidence in the Group 3 market. Fuel oil and gas oil also remained unchanged with movement only fair. Some fuel oil sales are being made at prices 2½ cents below the general market as shown, but most of this is for resale.

Lubricants have had a good movement throughout the year and the prices have been maintained fairly well, but there is a tendency now to make price concessions which accounts for the general decline in the price structure. This decline was apparent in all grades of neutrals, but did not apply to cylinder stocks. Wax inquiries indicated a greater interest in this commodity and, although there was no price change, refiners are taking a more optimistic view of its future.

Gasoline Weak

Even the refiners who were most optimistic about the situation a week ago were in agreement that the present price on U. S. Motor gasoline was flat 6¼ cents now. During the week, orders were received for small volumes for immediate shipment, indicating the hand-to-mouth buying being practiced by the jobbers. However, in view of this, the volume of orders over the past week has been fairly large and has allowed refiners to meet the estimated shipping schedules better than was promised a week ago.

In previous years the refiners could usually estimate the total month's shipments in advance by the twentieth of the month because most orders were booked by that date. Jobbers are as well able to judge their needs now as in previous times, but there is no inducement to anticipate requirements now. Almost daily, news of a purchase of gasoline made at an abnormally low price reaches these jobbers and they are kept out of the market except to buy just what is needed. They are just as uncertain of the future as the refiners. Most of this disturbing news is true, but applies to sales made under unusual conditions and cannot be interpreted as the general tone of the market.

Refinery Situation

Refiners can not reduce prices much lower without a crude drop and that does not seem as probable now as it did several weeks ago. At today's market prices, using average yields and expenses in running Seminole crude, it is estimated that the bare manufacturing margin per barrel of crude is $0.10, as shown in the accompanying detail of revenue and expenses. This is left to pay the sales expense, overhead, interest, depreciation,

(Continued on Page 135)

REFINED MARKET BAROMETER

Prices were generally maintained on all petroleum products in the various refining centers, but their position was secured only by small purchases for immediate shipment. Gasoline was freely offered at all points. California and Mexican gasoline flooded the eastern market, causing a recession of the retail prices and threatened the refinery prices by limiting the outlet. Fuel oil and gas oil moved slowly at the inland refining points, but maintained last week's prices, except in a few instances. Lubricants showed considerable weakness in the Mid-Continent, where price concessions forced the general price structure down from one-eighth to one-fourth cent. The weakness in the California and Gulf Coast lubricant market has been evident over a longer period and remains unchanged with the inability of these refiners to establish a foreign outlet. Kerosene showed signs of strengthening with the purchase of more than 100 cars in Louisiana for export, but price advances have been made in that area only. Wax and distillates attracted more attention than last week, but the prices remained unchanged. Natural gasoline was plentiful, but last week's prices were maintained.

Mid-Continent—Gasoline prices in most areas were maintained, with plenty of that product available in all sections. Fuel oil moved slowly but consistently. Lubricants showed considerable weakness. Wax continued to receive more attention by purchasers, but prices have not advanced.

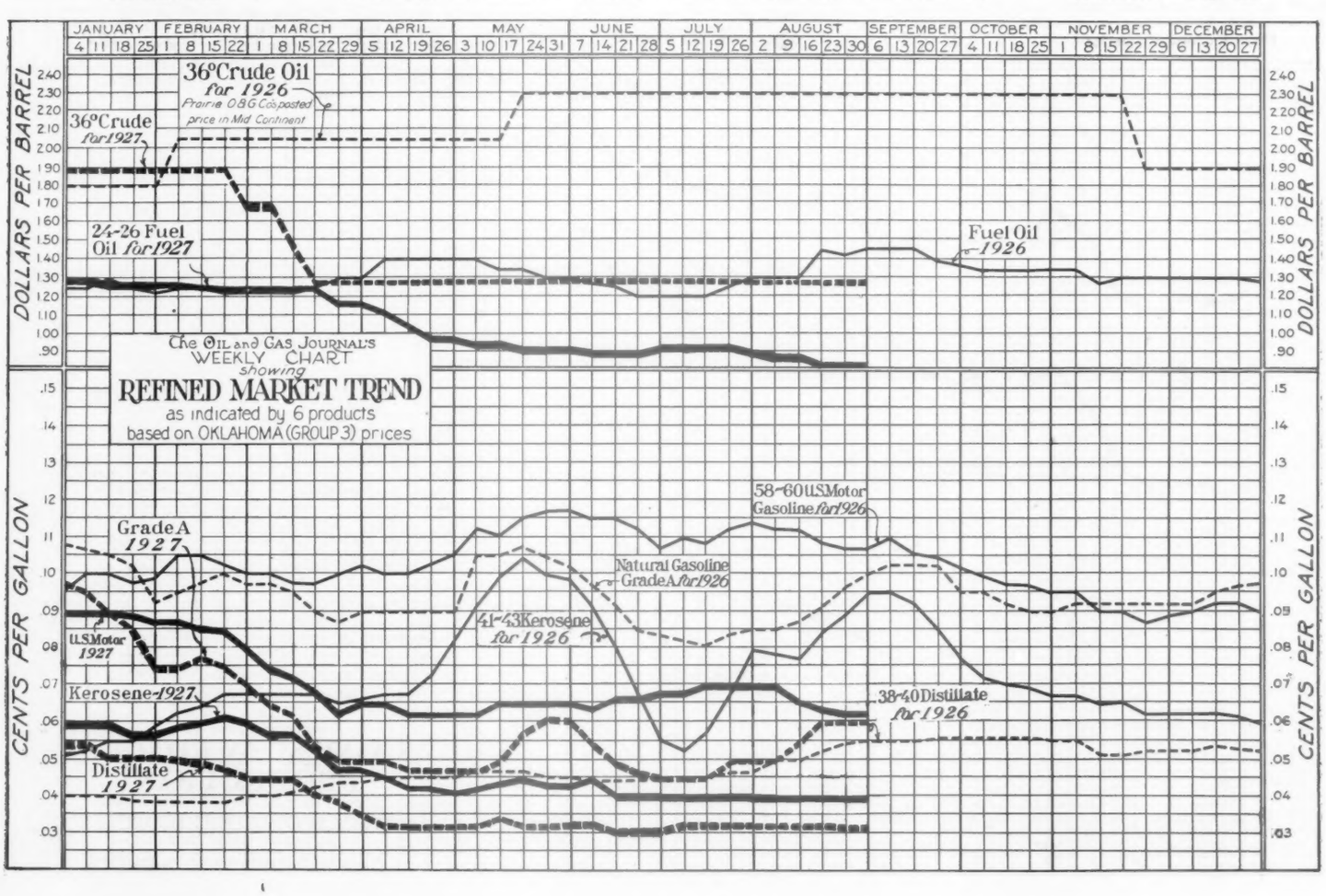
Atlantic Seaboard—The dumping of California and Mexican gasoline weakened the retail market and threatened lower refinery prices. Lubricants remained to move at a fair rate. Lower fuel oil prices are expected to result from the lower freight rates from the West to the East.

California—Gasoline was plentiful and moved slowly. Natural gasoline stocks reached a new peak, with lower prices probable. Lubricants were sluggish. The fuel oil movement was the only encouraging factor in the California market.

Pennsylvania—Gasoline, kerosene and fuel oils moved fairly well, but there was no thought of a price advance, because of the great volume offered. Lubricants remained unchanged, with a slight improvement in the price and movement of cylinder stocks. Wax was generally stronger.

Gulf Coast—All products were freely offered, but there were no changes in the prices.

Chicago—Small, consistent orders for gasoline held the market from a further decline. Heavy fuels were in better demand, but there were plenty available.



Peculiarities of the Pecos Oil Field

Transportation Troubles Many. Wells completed in 25 to 35 Days. Varying Views on Potential Production of Area

By James H. Dameron

MIDLAND, Tex., Aug. 29.—Pecos, the most colorful field in Texas and one of the most remarkable discovered because of its shallow gusher production, is carrying its uniqueness steps further in drilling and transportation of material. It will, if rapidly developed, probably be the occasion of a reunion of drillers running machines. And while production departments do not maintain a highway commission, they are nevertheless going in strong for road building. The ruggedness of Pecos, with its small valleys and sharp inclining hills, will present many perplexing obstacles for the production department to surmount to get material on location.

Pecos may or may not be developed rapidly. When it is and the rock pressure falls and the volume of gas in the wells decreases, air lift will be used to bring up production. The wells at present do not need the aid of air lift nor the effects of a shot.

Although practically all of the acreage now considered best is held by major or strong independent companies, line fights and offset drilling could very easily start a drilling campaign in Pecos that would have more than 100 wells drilling at one time, and 100 wells half as good as the big wells drilled thus far in the field, would skyrocket production. Wells making 400 bbls. per hour in Pecos cease to stir production men as they formerly did. One of the wells is estimated to be good for 15,000 bbls. daily.

Three Factors in Control

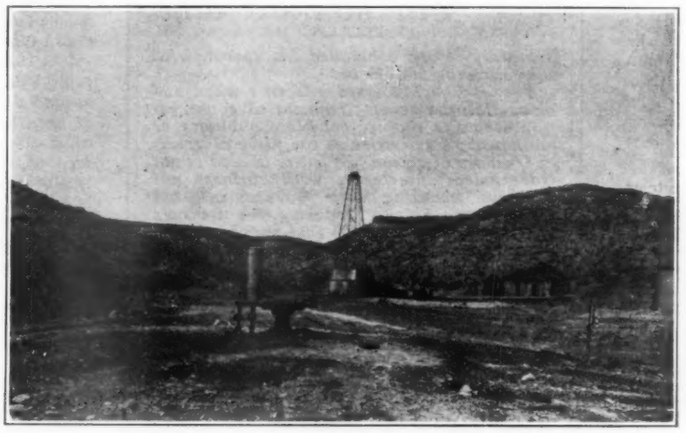
However, three factors will play an important part in keeping Pecos under control to the extent that it will not break the crude market. Various estimates of what the peak of Pecos will be place it at anywhere from 200,000 to 500,000 bbls. daily. Taking cognizance of the potentialities of the field, W. S. Farish, president of the Humble Oil & Refining Co., is making an effort to have operators enter into an equitable proration program until conditions are improved. No definite agreement was reached at the first meeting of Pecos operators but definite action is expected as a result of the second meeting which is to be held in Fort Worth, September 2. Another factor is the present inadequate pipe line and storoge situation in Pecos and the third factor is the low price of the crude which is being sold at a flat price of 60 cents per barrel. Only two short lines run Pecos production at present and those lines are not being operated at capacity. Three other lines, however, are being built out of the field and one will be completed around September 1.

All but 2 of the 16 wells in the field are pinched in to their minimum production and some are shut in. Those not pinched in are small producers, one being off production at present because of inadequate storage and because it is isolated from a pipe line and the other well is good for around 200 bbls. daily. Those 14 wells are estimated to be capable of producing around 85,000 bbls. daily if they were opened wide. However, none of the wells has been permitted to flow wide open for a full 24-hour period. Only two lines are running from the field, one an 8-inch line and the other a 6-inch line and both to McCamey loading rack. What little storage is in the field would not hold a full 24-hour production because most of it is full.

Three trunk lines are being built out of the field at present. Humble Pipe Line Co. is building a line north to Kemper Station near the Big Lake Field in Reagan County. This line will tie into the company's main line system running south to Ingleside. The Humble Co. announced its intention of allotting 30,000 bbls. daily of the capacity of the new line to Pecos cars from there. It is estimated those lines can handle a big portion of Pecos production if the field is drilled rapidly.

Drilling Not So Rapid

Drilling, however, and completing a well in the shallow pay is not going to be a matter of a couple of weeks. Production men estimate that it will require anywhere from 25 to 35 days to complete a well in Pecos. The difficulty lies in the first few hundred feet of drilling. Roughly speaking, there is a 300-foot gravel bed through which the big pipe has to be driven. Sometimes this gravel can be drilled through with fairly good speed but at other times drilling through the gravel is almost as snappy as the speed made with small tools in a 5,000-foot hole.



In the foreground is No. 3 on the Mid-Kansas Oil & Gas Co. and Transcontinental Oil Co.'s I. G. Yates' A lease in Pecos County. The derrick in the background is over the discovery well that opened the rich shallow area, and behind the derrick and 235 feet west is No. 2 Yates A, good for 10,000 bbls. daily at 1,000 feet.

After getting through the gravel drilling is comparatively easy and rapid. The first 500 feet of formations has several water stratas and some companies use three strings of pipe in drilling that much hole—15½-inch, 12-inch and 10-inch pipe. Others use three strings to complete a well. Around 250 feet of 10-inch is used and around 800 feet of 8-inch is set. Six and five-eighths pipe is landed on top of the pay at around 1,000 feet. Many operators cement the 6-inch pipe on top of the Big Lake lime overlying the porous lime pay. Connections are put on before drilling in and the casing is well anchored to insure drilling-in with safety. The rock pressure of the field varies from 300 to 400 pounds per square inch and there is a good volume of gas.

Transportation Troubles

Because of the mountainous character of the country with its ever-present steep hills and valleys, transportation of material is going to be somewhat difficult. Some of the hills have a gentle slope while others are just a little short of sharp cliffs not easily accessible. Locations will be made on top on many of the sharp cliffs and one location was recently made that will require the expenditure of several thousand dollars to reach it.

With the entire Pecos Field more or less chopped up by the hills and valleys a large sum of money will have to be invested in roads winding around and over the hills. Those hills are anywhere from 150 to 250 feet high. One company spent $4,000 in building a short road to a well on one of the hills.

On some of the hills production men doubt the ability of trucks and tractors to move the material to the location. So far teams and trucks have handled the transportation problem very well but on some of the most difficult locations it is doubtful if anything less than a winch can be successfully used to get heavy material on top of some of the hills.

Fairly good roads from Girvin, a point on the Orient Railroad, to the field makes the transportation problem to the edge of the field easy. But getting into the heart of the field and to the various leases is a problem the production departments are giving much thought to. Several companies are preparing to spend large sums in the cutting and grading of roads. The digging of pipe line trenches is also expensive and slow work. Approximately 75 per cent of the ditching has to be done by blasting.

Extremes in Drilling

In drilling, Pecos goes from one extreme to another. Production has been found in the Pecos River bed on the east side of the field. Only one producer has been drilled in the river bed and another river bed test several miles to the north was dry.

In the small canyons of Pecos the locations are fairly easy to reach with trucks. On part of the Mid-Kansas and Transcontinental acreage a camp is maintained in one canyon which is about one-half to three-quarters of a mile wide and approximately 2 miles long. A few of the big wells have been drilled in that canyon.

The character of the country in Pecos is entirely different to that of fields to the north in Crane, Upton and Winkler counties. There, sand makes the transportion problem a knotty one. In Winkler County, especially, this is true and some authorities believe that caterpillar tractors will be the best to move material in that sandy country when development opens there.

(Continued on Page 134)

WEST TEXAS AND PANHANDLE AS NEW YORK VIEWS OUTLOOK

By N. O. Fanning

New York Bureau, The Oil and Gas Journal, Room 629, No. 101 Park Avenue, New York, N. Y.

NEW YORK, Aug. 29.—Many leading oil producers here are of the opinion that Seminole has passed its peak and will gradually fade from now on as a determining factor in the oil situation. They now regard the outlook as depending almost entirely on developments in West Texas and the Panhandle.

Many producers feel that West Texas and the Panhandle together could produce the greatest flood of oil the country has ever seen, and believe the only chance of mitigating this flood in coming months is by careful restriction of operations. They are not optimistic with regard to this, however, as they feel that there will be a big rush to West Texas and the Panhandle as soon as operators generally are convinced Seminole is through, and that only actual legislation can prevent acute competitive conditions in this great area. As they also do not believe legislation can be put through for many months, they are plainly pessimistic about the outlook.

If conditions in the West Texas areas continue as they are now the situation will not be so bad, oil men here believe. However, they point out that the drilling fraternity, including all operators from wildcatters to big company producers, have not yet concentrated on West Texas to their full ability, because of the influence of Seminole. The several pools uncovered so far are fairly well regulated. But in the Pecos County Field, for instance, only three or four companies have drilled in producers yet. In view of the favorable results obtained, the amount of drilling in this area is bound to grow enormously as time goes on. The same situation is more or less true of the other pools in West Texas.

The Pecos County Field has been held down successfully to date. This was due to the large land holdings of a few companies, and lack of transportation facilities. As the producing area is extended and pipe lines are approaching completion to the field, both factors are being eliminated. The problem of holding back production will be more difficult as the number of producing interests increases.

West Texas, not including the Panhandle, is a vast area composed of several fields which seem to give promise of producing as much as the average flush oil pool such as Powell, Spindletop or even Seminole. Three or four pools like this developed simultaneously would naturally cause a continuation of unbalanced conditions in the oil industry. The Panhandle, also an area large in extent, might easily duplicate West Texas.

If these two areas are developed indiscriminately, the only recourse left to the oil industry would be that of seeking restrictive legislation and forcing unit op-

(Continued on Page 84)

To Ask Congress for Oil Legislation

Chairman Work of Federal Oil Board Suggests Bar Association Co-operate in Framing Proposed Bill

By Hubert Work*
Secretary of the Interior and Chairman of the Federal Oil Conservation Board

Conservation in recent years has lost much of its theoretical flavor and is now understood as having to do with everyday life. In simple term, conservation is taking thought for the morrow—a forward-looking, constructive process. Our fathers were conservationists without knowing the word, for most that we cherish in our American heritage has come down to us as the product of wise planning by those who settled the country, laid out its transportation routes, planned its cities, built its industries, and above all gave us our constitution and laws. Forward-looking builders were those early Americans.

Conservation in the sense of planning in terms of material resources, however, has now taken on new meaning and acquired greater emphasis because we are living in a time of increasing dependence upon raw materials. The present-day civilization makes so great demands on fuels and metals and a score of other raw materials that the Nation needs to balance its accounts and see how long the Natural Reserve Bank can continue to honor is regular drafts. It is the wise nation that thinks of future needs and therefore lives within its means.

America Cyclonic Center

Nature has been so generous with these United States—the most favored of all nations—that we have simply left it to our geologists and engineers to find and put to use our great stores of treasure. Yet the activities of the engineer who deals with natural forces and natural resources for the use of man are subject to man-made law as well as to natural law. With the speeding up of life more attention must be given to its control. A new phase recently came across the Atlantic from Geneva — "the rationalization of industrial production." Whether or not new words are needed, a comparatively new idea seems to be winning world-wide attention and that idea is the general adoption of more efficient technical methods and improved mechanical devices. The almost phenomenal speed with which this idea is spreading, with America as the cyclonic center, forces upon us the consideration of the economic, political and legal phases of productive business. This is why conservation is a national policy and as a practical problem impels the attention of every citizen: land owner, engineer, business man, lawmaker and consumer.

Conservation as Insurance

Conservation may be likened to an insurance policy guaranteeing the Nation's future supply of needed raw materials and underwriting the future prices for these essential commodities. Supply and price to a large extent make up one problem—at least they can be regarded as interdependent. Adequate supply is the more important but reasonable price may be uppermost in the popular mind. But we need only to reflect to realize that price often conditions supply, while supply also determines price. Conservation comprehends both in its outlook upon the future, for it seeks to equalize supply and stabilize prices, harmonizing present and future. In conservation as I see it there is no hazarding the future safety of the Nation for any mere present-day advantage, nor, on the other hand, should we suffer any utter sacrifice of the present in favor of the future. There can be and should be a rational balancing of present and future advantages. In all respects conservation makes its appeal to reason and is a policy that should win the support of men of affairs. It is a practical policy in the Nation's business.

Civil War of Competition

Oil conservation is perhaps the phase of conservation that possesses the most news value just now. And oil conservation is typical of the whole problem of resources planning. At present, oil is being produced on a scale never before reached. A civil war of intense competition is today producing a waste problem in the oil industry so big that it is national in extent and interest. Unless the industry is able to co-operate, huge losses are inevitable. Statistics of a somewhat reliable nature indicate a decline since the peak in 1926 of over $500,000,000 in the market value of the oil company stocks represented on the New York Exchange. Some indicate that losses to the industry as a whole will total nearly $1,000,000,000. I do not vouch for these figures, but they are ventured by men in the industry who are presumed to keep in intimate touch with actual industrial conditions.

Tremendous losses suffered by the oil industry similarly affect the general public. For practically all the large producing and refining companies are today owned not by a handful of wealthy men, but by hundreds of thousands of individual stockholders scattered throughout the country. I am informed that stockholders, bondholders and owners of royalties on oil production number approximately 1,500,000. Stockholders and bondholders alone number 1,450,000. This vast army of investors represents citizens of both sexes in all strata of our society. They are school teachers, clerks, laborers, professional men and women. In many instances their holdings represent their life's savings. So, when a great institution like the oil industry slumps, the burden is not carried so much by officials and directors as by the small individual stockholders.

A National Disaster

Think of the marvelous growth of this industry. Less than 70 years ago the first well struck oil at 68 feet; today wells are drilled to depths of 1½ miles. In 1861, two years after Colonel Drake's well startled this industry, the country's production for 12 months was much less than the wells of this country have produced in the past 24 hours. Last year the more than 300,000 wells of the United States produced over three-fourths of a billion barrels, and this year the oil output from these and the new gushers will exceed 900,000,000 bbls.—a flood of oil that takes on the proportions of a national disaster. Measured by the usual standard of value, this industry has grown in 20 years from a capital investment of $750,000,000 to something around $11,000,000,000. Measured by the standard of use, the products of this industry have now become the lifeblood of transportation—on the surface of the earth, in the air above, and in the waters beneath. The distance between continents is now figured in gallons of gasoline.

Since the first recorded production, nearly 10,000,000,000 bbls. of petroleum have been taken from the earth. Our natural resources are giving us fabulous wealth, and potentially these same resources should be regarded as inexhaustible. While billions of barrels of petroleum have come from the earth's depths, none can assure us that additional billions are yet to be recovered. With the extraction of each barrel of oil, our resources are being lowered that much, and the Government has sought to impress upon producers the necessity for storing oil in the ground instead of bringing it to the surface with resultant loss to everybody concerned. Overproduction today is injuring millions who have their wealth invested in oil properties; it is injuring the great producing and refining companies; it is depleting a natural resource which can never be replaced.

Brake Is Needed

Overproduction is no longer a debatable issue. Whereas a year or two ago the optimists in the oil business kept up their courage by denying both the fact of present surplus and the possibility of future deficit, all now admit that the oversupply of an expendible resource is the sure portent of future famine.

The chief cause of overproduction is overcompetition. Nature and human nature seem to have conspired to make the oil game a game of chance. To judge from the remarkable progress made in the past decade in oil geology and oil engineering, it might seem that conquering nature is easier than restraining human nature. In the oil industry scientists and engineers have been winning out in their attack on nature with the result that oil is being found more quickly and wells are being drilled more quickly and the underground supply is being brought to market more quickly. With all this speeding up of nature, however, no one seems to have thought of attempting to work on human nature, where there is urgent need of applying the brakes.

The present crisis in oil—described by one oil company president as the most malignant form of industrial disease and by another president as an economic disaster of international proportions—has come because of this delay in attending to the human side of the problem. Law makers and law interpreters have stood back while the procession of oil operators, petroleum geologists, production engineers, inventors and builders of machinery have passed by, making progress such as the world has never seen before. It was appreciation of this situation a year ago that led our Federal Oil Conservation Board in its report to urge the formulation and adoption of remedial measures, all the more urgent in view of this intense activity of the engineers. We then suggested "that the lawyers familiar with the business of the oil operators take the lead in developing the needed line of action in accord with the discoveries of science and changes in engineering practice."

No Constructive Move

A year has now passed, the peak of production of oil is endangering the health of the industry—indeed, the very life of the smaller and weaker

COMMITTEE OF NINE DESIRED TO DRAFT OIL BOARD'S BILL

Secretary Work concluded his speech with the following statement:

The approach toward effecting ways and means for the accomplishment of conservation seems to require complete publicity of an industry's activities as the price of greater freedom of action. What is needed is not Government interfering with business nor business meddling with Government, but Government helping industry for its own and the public good. To that end, I ask that you contribute to national conservation the legal advice it sorely needs.

A suggestion to leave with you; I believe the time has arrived when the Federal Government should ask Congress for legislation intended to protect our oil deposits against waste in production, and the public against future high cost of oil products. Never in our national history was the need for conserving in the ground our petroleum resources more apparent than now.

The constituting of a committee of nine, three of its ablest members selected by the American Bar Association, three practical engineers from the oil industry, with three representatives of the Government, to draft a bill for the Federal Oil Conservation Board to study and recheck, with a view to its introduction into the Seventieth Congress, would seem desirable. Through such procedure we will have unity in thought, action and legislation in the interests of economic production and consumption of our greatest natural resource, which has become the world's dominant factor in the economic, industrial and social life of our modern civilization.

*Before the annual meeting of the Mineral Law Section, American Bar Association, at Buffalo, New York, August 30, 1927.

companies—and yet no constructive move has been made toward "relieving the pressure of competition" which now bears so heavily upon the thousands of units in the business which the country can not afford to see go down and out. Are we to indulge in this watchful waiting for disaster?

The oil man has many troubles—hazards bristle all along his path—but the chief handicap of the industry is underground. Every lawyer knows how productive of litigation is any uncertainty about the exact location of property lines; in oil lands that uncertainty extends to the location not of surface lines but of the subsurface property—the oil itself. When once man has started things, this property is mobile, so that the contest cannot be a leisurely procedure in the courts but of necessity becomes a strenuous fight on the ground, with drilling rigs and crews racing to reach the oil first and to reduce to actual possession the elusive and fugitive property.

The ordinary workings of the economic law of supply and demand find no chance in the business of producing petroleum. The decision to drill does not wait on market reports; demand for the product is rarely a factor in influencing the development of oil property—simply the desire to get the oil before someone else gets it. Thus, as in no other activity, the oil industry throws financial conservation and business sagacity to the winds and indulges in the primitive instincts of the chase.

Restraint Needed

Now, at last, the thinking leaders of this great business realize the need of restraint—preferably from within, self-regulation, but at all events some restraining hand. The engineering helpers of the industry have perhaps done their work too well; they have speeded up the business to the present peak of disastrous overproduction; the need now is for the legal-minded advisers to realize the economic crisis and bring relief, and bring it speedily. If eminent oil men are justified in their diagnosis of this overgrowth of the oil business as malignant, I suggest the calling in of some doctors of laws to treat the sick industry, and it is heroic treatment that seems indicated by the symptoms.

Constructive statesmanship is plainly needed, and the time is ripe for action. The oil industry is sick and therefore repentant and asking for help. Wisely, the leaders have adopted a policy of publicity, as is shown by recent conferences. Such discussion in the open is the best sign to the public that the industry has nothing to hide. Placing the facts before the public is always the best method of allaying suspicion and preventing misunderstanding. This treatment with the ultra-violet rays of publicity may detract from the rosy aspect of things but it has a truly remedial effect in the end.

Conservation in Ground

I have discussed conditions within the industry, and the immediate problems and the future of the immense producing and distributing companies. I recognize that a successful industry naturally contributes toward a successful Nation. But it is the latter, however, that holds paramount interest for me. The need for conserving in the ground our natural petroleum deposits was never more apparent than now. During the past three years new facts have been developed, new discoveries made, and the entire petroleum situation must be viewed in a new light, from new angles. At present overproduction is represented by many in the industry to vary between 500,000 and 1,000,000 barrels a day. If this immense surplus were permitted to remain in the earth, our future needs would be assured, our national life more surely safeguarded.

During the life of the Federal Oil Conservation Board two great pools, Smackover and Seminole, have been developed, with enormous production—production not needed, and production attended by great economic and physical waste. The millions of barrels of oil thus thrown upon the market, and the waste of billions of feet of valuable gas, have wrought injury upon Nation and industry alike. If Federal or additional state legislation is essential as a corrective, the sooner such enactment is evolved the better. If the remedy rests with the oil companies themselves, through voluntary and wholehearted co-operation, or through compulsory unit pool operation, or some other method, the time is pre-eminently ripe for action. The day of plenty may be succeeded by the day of famine. As a Nation we can not gamble with our safety, we must be surefooted in our material progress. And our progress depends largely upon a known and plentiful supply of petroleum,—the new driving force that now sustains our constantly expanding Nation.

Urges Legal Study

The once great divergence of opinion concerning the necessity for national conservation no longer exists among the leaders of the industry; therefore, it behooves the legal profession identified with the oil world to work out a sane and positive course that will protect our national structure in the years to come.

With the idea that general and widespread benefits outweigh individual and scattered advantages is naturally linked the idea of subordinating temporary advantages to long-term benefits. This in a way is what oil conservation means—considering the industry as a whole rather than a few individual units, and considering consumers, large and small, as well as producers, and all this over several decades instead of a few months. It is the future welfare of the whole industry that means more to the general public than the ups and downs of a single year.

Not Question of Price

The present trouble is not one of price demanding regulation in terms of the consumer, but rather conservation measures to prevent overproduction and permit the stabilization of the industry that will serve all, producer and consumer. The single item of gasoline prices may obscure our long-distance vision of the larger problem.

The owners of more than 22,000,000 automobiles in the United States are interested in the price of gasoline. The rise and fall of price levels are watched constantly and carefully. The causes for frequently recurring fluctuations are debated with varying emotions. Analysis of contributing factors often is sound, but more often unsound.

When gasoline prices are discussed consumers are inclined to remember the days of low prices and forget that gasoline prices have repeatedly risen to higher levels than prevail at the present time. The automobilist when he speaks of low prices usually has in mind the low prices of 1914 and 1915, when the flush production of the Cushing Field forced the price of crude oil to the low level of 30 cents a barrel; but the same buyer of gasoline fails to recall the high price of 1920, when there was a threatened shortage of crude and gasoline prices reached the highest point for many years—31 cents a gallon in New York City. The wholesale price of gasoline in New York City on both May 1, 1907, and May 1, 1913, was 17 cents a gallon as compared to a price of 20 cents on May 1, 1926, and 19 cents on May 1, 1927. Other essential commodities have shown a much higher increase in price during this period.

Overlook Gasoline Tax

Another element in the retail price of gasoline that frequently is overlooked in comparing present prices with those of former days is that now practically every state in the country collects a tax on gasoline, the amount ranging from 1 cent to 5 cents a gallon. This tax added to the retail price of gasoline has confused the public in that too often the consumer places upon the oil industry the entire blame for increased prices. Even the governor of an eastern state in comparing last year's local retail prices with those of previous dates overlooked the fact that in the interval his own state had added the tax.

The automobilist also fails to consider the fluctuations in the prices of crude oil, yet those are greater than those in the prices of gasoline. This more violent swing is due to the fact that the supply of crude more directly affects its price, so that the bringing in of a few big pools within a short period completely upsets the price structure.

Small Producers Endangered

The lowered price due to flush production carries the certainty of large losses to the small producers, for while it is true that the wide swing in price of crude oil has been said to mean enormous gains offsetting enormous losses, unfortunately the gains and losses are not impartially distributed. The industry includes small units along with large, and it is the little companies or individual owners of a few wells who are in dire straits at the present time. Immediate action is needed to save many of these small producers from disaster, an economic loss which would later involve the consumers.

The consumer can not afford to have any of the thousands of small wells abandoned in this period of oversupply, for their output will be later needed. Long-term stabilization of the business under conditions which allow all producers to operate means lower prices to the consumer in the end than can be expected to prevail if cut-throat competition exploits the present, with little or no regard for future needs. In the long run, conservation will pay dividends to the consumer.

Wasteful Distribution

The present-day price of gasoline, then, is not the only factor to be considered. Nearly three years ago in appointing the Federal Oil Conservation Board the President pointed out that oversupply "encourages cheapness, which in turn leads to wastefulness and disregard of essential values." One of the economic leaks due to overproduction is the wasteful competition in distribution.

In the distribution of gasoline through the 250,000 filling stations scattered over the length and breadth of our land, the automobilist is well served, but at what cost! The service station absorbs nearly as much of the price you pay for gasoline as the refinery and oil well, while the transportation charges generally equal the highest of state taxes. Plainly, distribution costs too much, for there are far too many outlets for the oversupply of this commodity, the total demand for which is much more affected by the weather than by brightly painted service stations or attractive roadside advertising signs. We thus pay for a competition that increases costs rather than reduces prices, and that piling up of unnecessary cost has been estimated in a single state at not less than $20,000,000.

Competing With Coal

The outstanding fact in the present oil situation is that during the past few years new and large producing oil fields, developed to capacity under conditions of rapid and competitive exploitation, have produced a supply of oil far above and beyond the demand of essential use. The market has been deluged with so great a supply that petroleum has been forced into keen and violent competition with coal in nearly all its area of consumption, with the result that possibly one-half of America's oil production is being used to displace the legitimate and equally effective use of coal. The waste of natural gas incident to the past and present methods of capturing oil at the surface is prodigal and extravagant, and the gas thus lost is estimated to be equivalent in value and effectiveness to a very large percentage of all the petroleum actually subjected to control and ownership. In the light of these developments it can hardly be urged that the time is not ripe for a rigid economy and conservation of this great and useful natural resource.

Government Leases

The Government itself as the administrator of the public and Indian lands happens to be no negligible factor in the current production of petroleum. The Secretary of the Interior unfortunately does not possess as much discretionary authority over the Indian oil lands as could be used to the advantage of the Indian owners, the lessee operators, and the public, but as regards the 500 oil and gas leases on government land I may assert that the government landlord is perhaps the best conservationist among landlords. Not only are the government leases administered with the best of engineering skill, but the lessees have been encouraged to delay development and restrict production under the present conditions of general overproduction, with the result that a large part of the shut-in production in the whole country is actually on the public lands. In this respect the Government is following the advice of the Oil Board to the industry.

Constructive Statesmanship Needed

All that I have said of the relation of oil conservation to public interest, of the inherent danger to future prosperity from present waste, of the call for constructive statesmanship to save an overcompetitive industry from itself—all this is typical of a larger problem in democratic government. The present is a period of marvelous progress in scientific discovery, in engineering application, and in industrial development, but there is a lag in the performance of the laws governing business. I might suggest that we have too many laws applied to superficial symptoms: For example, many well-meaning individuals will rush forward

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Constitutional Obstacles to Oil Law

James A. Veasey Addresses Minerals Section of American Bar Association on Difficulties in Regulating Production

By James A. Veasey*

Colossal in its capital investment, and in the extent of its world-wide business, supplying commodities probably more essential to the well being and prosperity of the people of the United States than any other, save the products of agriculture, marvelous in the ingenuity, energy, and financial daring which has made it possible for it to meet the constantly increasing demand for its products, at prices always relatively lower than those characterizing any other staple, The American Petroleum Industry at last is setting itself to the all-important task of solving a problem which at rather frequent intervals has harassed it from the beginning, the problem of the overproduction of its raw material, crude oil. The movement had its inception in the efforts of a few stalwart, forward-looking crusaders within the industry itself who later found the ready support and co-operation of the Fedaral Oil Board, appointed by the president in December, 1924, and it is now receiving the earnest and thoroughgoing attention of the industry's national organization, The American Petroleum Institute.

Our more advanced economists no longer hold the view that overproduction in the broader aspect of that term has a compensating result. They apply this reasoning with special force to all enterprises which engage in large scale production, and where the balancing of supply and demand is not only a difficult and long, drawn-out process but one attended by serious financial loss either to the industry concerned or to the consuming public. Orderly production upon the basis of a stabilized price, fair alike to the producer and the consumer, is the modern economic ideal. This is the principle for which the farmer, the bituminous coal miner, the textile industries, and other enterprises, plagued by overproduction and its attendant evils, are now so vigorously contending.

More Serious in Oil Business

Overproduction in the basic industries just referred to is serious enough, but a similar condition in the oil business results in consequences which do not visit any other pursuit. First and foremost, is the utter inability of the oil producer, acting individually, to reduce his production for the purpose of equalizing the supply with a diminished or diminishing demand. In like circumstances, the miner of solid minerals, the lumberman, or manufacturer may shut down his plant or reduce his output. The sole loss to him is that normally incident to a stoppage or reduction of production. On the other hand, the oil producer does not have freedom of action in this regard. Oil is a vagrant mineral and is the property of the one who, on his own land, reduces it to possession. When several tracts of land are underlaid by a common oil reservoir, which is almost universally the case, the extent and celerity of the operations of one producer must be determined by the acts of his neighbors. All of them but one may wish to refrain from drilling new wells, or reduce the production of existing wells during a period of overproduction; but if this one is of a contrary mind, he may force all of the producers in the pool to engage in an intensive drilling campaign, or to operate their properties to capacity.

The history of the oil business abounds in countless situations of this sort, and thus if overproduction exists the condition persistently is aggravated instead of relieved by these practices. Hence, the matter comes to this: Unite of all other industries by taking individual action may eventually restore the equilibrium between supply and demand. No such course is open to the oil industry. All the operators interested in a particular pool must voluntarily combine to achieve the result, or there must be coercive legislation appropriately adapted to the accomplishment of that object.

Readjustment Period

The second distinction between the petroleum industry and all other industries resulting from overproduction is the extreme and radical readjustment to which the oil business must submit during periods of over-supply. The reduction or expansion of the margin between supply and demand in all industries, save petroleum, is brought about more or less gradually. An opportunity for orderly stabilization is thus afforded. This process is impossible in relation to the oil business. Future discoveries cannot be anticipated with any degree of certainty, nor can the holding qualities of existing flush production safely be approximated. Hence, the transition from an under-supply to an over-supply or the reverse is necessarily abrupt. Frequently, the consequences of a situation of this sort are nothing short of disastrous, as the experience of the industry at the moment so completely demonstrates. The oil industry entered upon an unusually severe period of overproduction about November, 1926. With production mounting constantly between that date and June 1, 1927, the price of crude oil in the Mid-Continent Field and in the Rocky Mountain regions were cut nearly one-half in this interval. During the same period, the price of California crude was reduced more than one-third. The loss resulting to producers from this difference in price ran into hundreds of millions of dollars. But this was not all: In the older fields where the output was not flush, the price of crude actually had fallen below the cost of production where the capital investment of the small operators was taken into account. In the nature of things, these radical and abrupt price cuts in relation to the industry's raw material immediately reacted upon the price of refinery products, and a condition approaching almost complete demoralization ensued. A careful observer, writing in one of the leading oil journals, estimates that as a result of the situation the refineries of the country were sustaining a loss of gross revenue of $1,645,000 daily from gasoline sales alone Another inevitable incident of the depression was the decline in the market value of oil securities held by hundreds of thousands of investors, large and small, in every section of the country. By May 21, 1927, in comparison with stock market quotations having the highest range for 1926, the shares of 30 of the larger petroleum companies experienced a price decline of nearly $600,000,000, and the depreciation of all oil shares during the same period approximated about $1,000,000,000 Despite the unfortunate predicament of the bituminous coal business and other basic industries which are undergoing economic readjustment, no parallel can be found for the extraordinary losses which, under existing conditions, the oil industry must sustain during periods of overproduction.

Conservation a Necessity

The considerations noted above should demonstrate that overproduction is a far greater menace to the petroleum industry than any other: First, because there is no adaptable method available to the industry to restore the balance between supply and demand as is true in the case of all other industrial enterprises. Secondly, an aggravated condition of overproduction in the oil industry subjects the business to an extremely burdensome program of readjustment, and to infinitely greater financial loss than is incident in a similar state of affairs to any other industry. Thus hampered, the ability of the industry to meet its full economic responsibility is decidedly impaired, and on these grounds alone the solicitude of the public should be enlisted.

But constantly recurring periods of overproduction of petroleum bring into view what is now a commonly recognized necessity, the conservation of our petroleum resources, not only for the benefit of the consuming public but in the interest of the national security as well. To demonstrate this point, deduction from the unusually able report of the Federal Conservation Board should be resorted to. The basic conclusions of the board are these:

1. That in the nature of things petroleum is a wasting asset.
2. That more than one-half of the country's total petroleum supply comes from 4 per cent of the producing wells, namely, flush wells.
3. That flush production comes from new discoveries, and that the maintenance of an adequate supply of crude petroleum to meet the needs of the country depends upon the constant discovery of new fields or the finding of production in deeper formations in old fields, both of these eventualities being purely fortuitous.
4. That our general industrial and commercial prosperity and the very security of our Government depends upon the ability of the American Petroleum Industry at all times to maintain an adequate supply of crude oil.
5. That during periods of overproduction oil products are driven into inferior uses which is not true conservation.
6. That the basic cause of overproduction is the competitive system of drilling imposed upon oil operators by existing laws and the long-established practices and customs of the business.
7. That competitive drilling not only results in overproduction, thereby driving oil products into inferior uses but that the competitive drilling practice results in the dissipation of the gas pressure in oil pools and a consequent reduction in the quantity of oil that ultimately will be recovered.
8. That conservation of our oil supply will be promoted by a restraint on competitive drilling and by conserving the gas pressure in oil pools.

The Scope of This Inquiry

From a legal viewpoint, the report of the Federal Oil Conservation Board suggests two important reforms in the conduct of the business of producing oil; namely, a restraint upon, or a modification of, the system of competitive drilling; and the retention of gas pressure in oil producing formations, to the end that the ultimate oil recovery may be enlarged. The pertinent thing is how these reforms may be brought about. Broadly speaking, there are at least three schools of thought in the industry in this regard: First, the ultra-conservatives who contend that the business of producing oil is so highly individualistic that each operator should be left free to pursue his own methods in the development of his property, independent of co-operation with his neighbors in the same pool, and completely immune from legislative control. Secondly, those holding that the practical and desirable solution

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*Address before Annual Convention Mineral Section, American Bar Association, Buffalo, N. Y.

LEGAL PHASES OF OIL INDUSTRY DISCUSSED AT BUFFALO MEETING

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

BUFFALO, N. Y., Aug. 30.—All preliminary conferences of the members of the minerals section, American Bar Association, assembled here with the purpose of considering legislation to help the oil industry handle its problem of overproduction, indicate that this is a symposium to invite suggestions rather than a convention to take definite action to enliven the assemblage of lawyers with opinions respective the powers of Federal Government.

Henry L. Doherty has had his communication addressed to the mineral section printed as advertising matter taking up a whole page in New York and Buffalo newspapers to prove that the war powers of the Constitution provide ample authority to enforce unit development and operation of its oil pools through some government regulatory agency. Mr. Doherty is not afraid of government regulation, whether it be of state legislatures or of Congress.

There is a general consensus of opinion that unit operation is economically correct and may be worked out by giving oil producers exemption from the restrictions of the antitrust laws just as the farmers have by congressional act been given liberty to work out their own salvation without fear of prosecution. However, lawyers of the oil industry fear that such regulation will eventually place it under a Federal public service commission and will become drastic. Many of them do not believe the war powers of the Government apply to oil production in time of peace.

Today the mineral section was addressed by Clarence E. Martin, Martinsburg, W. Va., on "Relative Rights and Duties of Subterranean Proprietors; Hubert Work, secretary of the interior, on "Conservation of Oil"; and James A. Veasey of Tulsa, general counsel of the Carter Oil Co. and nonresident lecturer on law of oil and gas at the University of Michigan, on "Legislative Control of the Business of Producing Oil and Gas."

All discussion before the minerals section will be referred to a council of nine members of the association with instructions to report back to the section with recommendations. It will not be possible for the American Bar Association to act on any recommendations before its next annual meeting.

The Wall Street Journal says: "Prospects of oil legislation being introduced look good. Several members of Congress, including Senators Borah, Norris and La Follette, are reported to have oil bills to introduce. President Coolidge has been concerned that the Oil Board continue as an important Federal agency. If Congress enacts new legislation without reference to the board there would no longer be any reason for its existence. It may be said that these factors, arguing for the Federal Oil Conservation Board taking the lead in the move for new legislation, are being considered in high official quarters."

Big California Increase in 1928-1929

Geologist Sees Great Possibilities in Union Avenue Field, Opened by Gulf Company in Southern San Joaquin Basin

By J. E. Eaton
Consulting Geologist

California gives signs of enormously increased production of crude oil in 1928 or 1929. This possibility has arisen in the past few weeks with the opening up of an entirely new structural line in southern San Joaquin Basin by the Pacific Eastern Production Co. (Gulf).

The writer would make it very plain at the start that this possible flood of oil from California is a long way off. The present oil situation is little affected, for we are merely looking ahead one or two years. Perhaps such increased production will be needed when it comes. The great—and temporary—peak of Seminole is apparently passing, and with the inevitable decline mentioned two months ago either at hand or not far away, the oil industry need not be too apprehensive about what may happen two years from now. Crude production in California during the balance of 1927 will probably average about 630,000 bbls.

Five oil fields have been discovered in California in a little more than one year's time. It is only the last of these, Union Avenue, that has alarmed the oil industry. The discovery at Seal Beach was important, but the overproduction there was much exaggerated. This great field is, on the whole, well controlled by the larger oil companies. A small town-lot nubbin on the northwest end has temporarily furnished about 30,000 bbls. of flush production, but its last oscillation is near at hand, and no very alarming features were presented by it at any time. The new Poso Field is capable of small heavy oil production and may prove profitable, but that is all. The same appears true of the newly discovered Round Mountain Field; and, if we substitute light oil for heavy oil, also of Goleta.

It is the discovery of the new Union Avenue Field, which opens the Bear Mountain sheer-zone for production, that has alarmed the industry in California.

New Structural Line

A few weeks ago, a wildcat well being drilled by the Pacific Eastern Production Co. (Gulf) shot an intermittent, but solid, 4-inch stream of oil up to the crown block. In the opinion of the writer, this was possibly the most important oil development in California for the past seven years. The reason may be seen by examining the accompanying sketch map.

This well has inferentially opened up for development a sheer zone comparable with the Newport-Beverly zone in Los Angeles Basin, which caused the flood of oil from California in 1923. Development along the Newport-Beverly sheer zone, which has produced nearly a half billion barrels of oil in the past seven years, was started by a well making only 125 bbls. on top of the seructure at Huntington Beach. One field alone of the seven now producing along this sheer zone has to date produced more than 240,000,000 bbls. of oil. This one field, Long Beach, may have a total ultimate production of oil almost as large as that of the entire Seminole district.

The new field at Union Avenue and the postulated new structural line are located far out in San Joaquin Basin, where the stratigraphic and drainage features are comparable to those in central Los Angeles Basin. Town lot conditions are happily rare, but some of the holdings along the general line are small—from 10 to 40 acres—and such large production as may be developed can only partly be held back. A feverish leasing campaign has been in progress, led by the very largest oil companies, for 20 miles along the strike. Fabulous prices are being paid for wildcat acreage many miles from the discovery in anticipation that a line of new fields similar to those in Los Angeles Basin will be developed.

The opening up of this new structural line by the Pacific Eastern Production Co. is a result of one of the most original labors in oil geology known from California for several years. The discovery is a result of detailed work by Hoyt S. Gale, president and chief geologist of the Pacific Eastern Production Co. Mr. Gale, who is the author of more than 40 technical works on geologic subjects, was a geologist with the United States Geological Survey for 15 years.

It seems worthy of note that the two outstanding recent wildcat successes in California have both been obtained by eastern oil companies who have invaded California. The Marland Oil Co. obtained commercial production in the Seal Beach Field shortly after beginning its local operations. The California branch of the Gulf interests, under the leadership of Mr. Gale, has secured a new field at its fourth attempt, and, in so doing, has broken all records among the larger oil companies operating in California.

Geologic Features

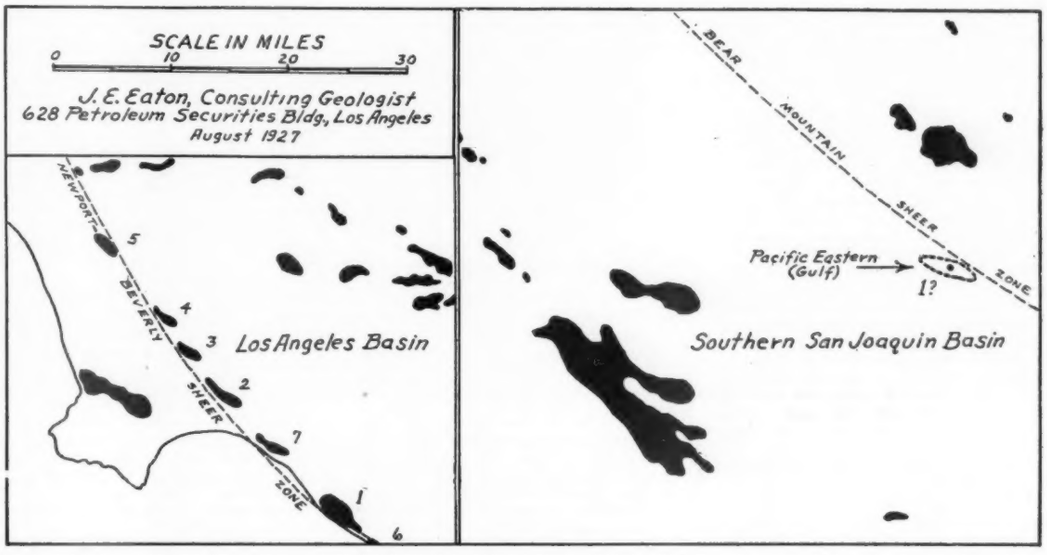
A few remarks about the oil geology of California may be of interest. Geologists are rapidly coming to realize that California anticlines are not of haphazard arrangement, but are the result of definite and deducible geologic laws. The theory published by the present writer several years ago, that the anticlines of the Newport-Beverly sheer zone are a result of differential horizontal movement along deep-seated sheering, has found to apply to nearly all of the domal oil fields of California and to most of the anticlines. Much work remains to be done on the general problem, but the features already recognized have provided a working hypothesis.

Existing knowledge of the later marine stratigraphy (rock succession) of California is inadequate. In southern California our failure to recognize strata of San Pablo (Upper Miocene) age as forming the base of the Fernanda group sediments has thrown the stratigraphic column into confusion. The Pico formation (Pliocene) has, as a result, been carried down and down, until it includes not only the type sediments, but also basal and underlying formations of the Fernando group. We have taken 3,000 feet of Pico sediments and locally expanded them into Ventura Basin to a thickness of 15,000 feet. Geologists will appreciate the discrepancy when it is explained that the type Pico is Pliocene in age and that Middle Miocene fauna has been found in what we locally call "Lower Pico."

Many millions of dollars have been lost in southern California for lack of stratigraphic knowledge. Truly large production there has been restricted to the Lower Pliocene and Upper Miocene portion of Fernanda group sediments.

Reserves Underestimated

One of our favorite pastimes in California has been the underestimating of oil reserves. The writer is under the impression that this has also been indulged in at other localities. California has already produced more oil than the total ultimate production allowed for some years back. The oil industry will usually be safe in adding at least 500,000,000 bbls. to the average estimate made for the State. The newly opened Bear Mountain sheer zone alone, in San Joaquin Basin, may perhaps add this amount to the California total. If it does not do this, it seems probable that some other structural line will. The writer estimated last year that possibly as much as 40 per cent of the oil in San Joaquin Basin remained to be discovered.*



With reference to the development of the new Bear Mountain sheer zone, it should be realized that large production there is at present potential and theoretical. It is, nevertheless, a factor to reckon with in calculating the future and one which makes current estimates of the total ultimate production of oil from California highly uncertain. It will almost certainly be many months, perhaps several years, before the potentialities of this area are known. In this connection, however, the reader is again reminded that the Newport-Beverly sheer zone, which has produced approximately 450,000,000 bbls. of oil in seven years, was inaugurated by a 125-bbl. well. Whether the first few wells on the new Bear Mountain structural line come in at 100 or at 10,000 bbls. each is of secondary interest to the structural geologist. What he is interested in was the first solid 4-inch stream of oil, intermittent and gas choked, that shot to the crown block. It told him that there was something new under the sun.

The oil industry is seeing many innovations. The gas and air lifts are revolutionizing production methods. Drilling by means of a series of continuous cores is near at hand. Geology is recognizing, after a hundred years of describing vertical faults, that horizontal sheering is equally important and frequently a chief cause of long lines of connected oil fields. Truly, as Gray Brother said, "from now, we follow new trails."

*J. E. Eaton, "Future Oil Production of California," The Oil and Gas Journal; December 30, 1926. p. 40.

STANDARD OF NEW JERSEY FORMS DOMESTIC PROPERTIES COMPANY

NEW YORK, Aug. 29.—The Standard Oil Co. of New Jersey announced today incorporation papers had been filed in Delaware for the Standard of New Jersey of Delaware, which is to take over the operating business of the present company incorporated in the State of New Jersey. The Delaware company has authorized an outstanding capital of $200,000,000 which will be owned entirely by the present company.

In the near future another new company will be incorporated in Delaware to acquire stocks of the Jersey company's foreign subsidiaries.

The Delaware company will have separate officials from the Jersey company and will own all the domestic properties of the Jersey company, including the Bayonne and Bayway Refinery System. It is understood the Carter Oil Co. and other subsidiaries, now owned 100 per cent by the Jersey company, will be dissolved and taken over by the Delaware company. The Humble Oil & Refining Co. and others partly owned will not be directly affected by the move.

Officers of the newly formed Standard Shipping Co. were announced today as follows: E. M. Clark, president; Robert L. Hague, vice president and general manager. Directors are those named and also H. F. Effelborn, W. L. Insle, W. C. Chaloner and C. E. Klipgard.

Discoveries in Flooding Operations

Torrey Throws More Light on Results of Air, Gas and Water Drives in Sands of Various Textures and Porosity

By Paul D. Torrey*

Slightly over one year has passed since the Northwestern Pennsylvania Oil Producers Association assumed responsibility for the research work started in the Bradford Field by the United States Geological Survey. During this time developments in methods for increasing oil recovery have progressed to such an extent that at the present time certain features of water and air or gas flooding that were standard practice several years ago have been made obsolete by recent improvements in recovery technology. Much of this change has taken place during a period of discouraging conditions in the oil industry for the Pennsylvania producers, and it is therefore excellent evidence of the initiative of the operators who are meeting price cuts with increased efficiency of operation.

Geologic Studies of the Bradford Field

The geologic studies which are being carried on by the Northwestern Pennsylvania Oil Producers Association, in co-operation with the Pennsylvania Geological Survey are nearing completion, notwithstanding the large area of the field and the painstaking care required in work of this character. It has not been possible to nearly complete the office work required for a careful study of the data obtained in the field, but to a certain extent this delay possesses an advantage, in that the conclusions which are formed for an individual property or area may be based upon a broad knowledge of conditions existing throughout the field, rather than upon the information obtained in a restricted area. It has certainly not been our intention to imply that certain geologic conditions in the sand body, which may materially affect the rate and direction of flood movement, will be found throughout the field but it is our desire to show that where such conditions are known to exist it will be possible to effect material economies in operation by planning a flood to conform to the character of sand encountered.

Results of Evaporation Tests

At the last annual meeting of the association, losses of oil by evaporation were discussed and methods for preventing this loss were suggested. It is very encouraging to note that real progress has been made in reducing oil evaporation on many properties throughout the field. The small expense which is required, in many cases, to considerably reduce this loss should appeal to every operator as an easy means of preventing what is frequently a serious reduction in income. It has been our policy to assist, in every way possible, in this work by making quantitative tests for oil loss for operators who have requested assistance, and it is our intention to continue these tests on as large a scale as possible.

Value of Accurate Production Records

We have been most favorably impressed by the increasing care with which oil and water production records are being kept on many properties. The value of such records should be entirely obvious. Not only do production records afford a close check on the rate and direction of flood movement, but they also offer the final and most accurate appraisal test of the value of a property. For the latter reason alone, they are certainly of great significance and importance.

Studies of Conditions at Intake Wells

In connection with records of oil and water production, it should be emphasized that far too little attention is paid to conditions at the water intake wells. There is a growing conviction on our part that one of the chief reasons for the apparent lack of large success of many floods can be traced to inadequate water supply. Simple tests which have been conducted in the Richburg Pool (Allegany County, New York) have given surprising results. It was found in several cases that the flood was being literally starved for water by improperly tubed or plugged intake wells. Methods for correcting such conditions are in most instances quite simple and are certainly worthy of consideration. One barrel of water per day for each foot of pay sand is giving excellent results in parts of the Allegany fields.

Of equal importance is a close check on the amount of air or gas going into the sand. The ever present danger of by-passing may, to a great extent, be prevented by systematic tests and by rearrangements of the flooding pattern of wells to conform to the rate and direction of the advance of the flood.

Application of Vacuum to Flood Wells

The use of a light vacuum on flood wells has been recently introduced on several properties in the Richburg Pool with excellent results. Increases in production amounting to about 35 per cent have been noted on one property. However, these wells are generally much shallower than the average wells in the Bradford field and hence the effective water pressure is less. The addition of a vacuum acts as an accelerator to fluid movement near the producing well and in the area of sand body surrounding it. Here the effect of the water pressure is greatly diminished by the resistance of the sand to the advance of the flood, and by the work done in overcoming the intertia of the oil held in the pore spaces and moving it toward a pumping well. The success of this method, in the Bradford Field, cannot be assured, but it would seem that it might be applied to advantage especially in areas of shallow drilling. A light vacuum is recommended because heavy vacuum is likely to cause caving troubles.

The Use of Increased Water Pressure

Within the last two years increased water pressure has been widely used in the Allegany fields. Sands possessing a porosity of as low as 7 per cent are being successfully flooded by this method where previous natural flooding methods had failed to increase production. Pressures as high as 1,000 pounds per square inch, besides the natural pressure of the water column in the intake well, are being used. Of especial interest is the fact that it has been possible to develop further production by using increased water pressure in what was regarded to be watered out areas. Increases in recovery have already amounted to as high as 15 per cent of the previous ultimate yield and the experiments being carried on at this time are by no means completed. It is entirely within reason to believe that this method may be applied in areas of tight sand in the Bradford Field to good advantage.

Soda Ash Process

The use of soda ash in the flood water is still being carried on, although on a rather limited scale. Results from its use have been slow in appearing. We are still inclined to believe that this process holds great possibilities and that the reason for the present lack of results may lie in its application rather than in its theory. Continued research in the use of soda ash is being carried on with the hopes of devising means that will allow for a more favorable action.

Air and Gas Flooding

The use of air and gas floods alone and in combination with water floods is rapidly gaining importance. In certain respects it seems hardly fair to pass judgment upon the use of air and gas while certain phases of its application are still in an experimental stage. Gas flooding, especially in combination with a water flood is giving very satisfactory results. However, there seems to be a growing conviction, and this is partially substantiated by recent developments in its use, that air flooding alone is very poor policy. Air flooding has reduced the gravity of the oil to such an extent (by the evaporation of the lighter constituents) that particles of floating sand remain in suspension in the oil, causing frequent and costly pulling jobs due to the abrasive action of the sand on the working barrels. These pulling costs and the coincident loss of production appear in some cases to make the use of air almost prohibitive. Furthermore, as the gravity of the oil decrease, its viscosity increases and it becomes more difficult for it to move through the minute pore spaces of the sand. A volumetric loss of at least 15 per cent has occurred on one property by air flooding, and the heavy oil which results from this reduction in volume is most difficult to handle in cold weather. It has been suggested that a certain amount of oxidation may also occur due to the agitation of the oil with the air and this has been proved not only in Bradford, but elsewhere by the presence of carbon dioxide in the air-gas mixture produced at the oil wells where no carbon dioxide had been previously known. The most successful use of gas flooding has occurred on properties where the sand will take the gas at relatively low pressures.

Characteristics of Oil Sands

The excellent results that have been obtained in the Bradford Field by water flooding and the apparently less satisfactory results from air and gas flooding on certain properties leads us to believe that the character of the reservoir rock is the determining factor in the successful application of the various methods of oil field rejuvenation in use at the present time. Water flooding has been a failure in sands possessing large pore spaces and correspondingly high permeability, such as the Second and Chipmunk, notwithstanding the statements of Uren[1] regarding the influence of size of sand grain on the effectiveness of flooding. Both the Chipmunk and Second sands have been successfully flooded by gas, and sands of similar lithology of the Venango Group, which have been subjected to air and gas pressure for over 10 years, are still being conomically operated. The Bradford sand is an almost uniformly hard, fine grained, tightly cemented sandstone, which could almost serve as a building stone were it possible to quarry it. Mr. Clarence Ross[2] of the United States Geological Survey, in describing the Bradford sand, has stated as follows: "The sand grains are quartz for the most part, but there are small amounts of feldspar mica and much chert-like material. The grains are angular and interlocking and there may have been some enlargement of the quartz. The interstitial material is not abundant, but is made up of a brown mica-like clay material." In direct contrast to the Bradford sand are the coarse grained and in some cases conglomeratic, highly permeable oil sands of the middle and upper Chemung formation and of the Venango Group.

Perhaps one of the chief reasons for the failure of water flooding in oil sands possessing large pore spaces is the fact that by-passing through the less saturated parts of the sand is much easier than in tighter and consequently less depleted sands. After a long period of natural

(Continued on Page 132)

*Presented at the annual meeting of the Northwestern Pennsylvania Oil Producers Association, Bradford, Pa.

[1]Uren, Lester C., "Increasing Oil Recovery by Flooding."
[2]Ross, Clarence, Personal Communication.

Sudden Death of P. L. McGreal
Shock to Friends in Industry

Patrick Louis McGreal, for 13 years in charge of The Oil and Gas Journal's Gulf Coast news bureau, at Houston, Tex., died suddenly in the lobby of the Cotton Hotel, Houston, on Saturday, August 27. Mr. McGreal was talking to a group of friends when he sank to the floor unconscious. The end came a few minutes later.

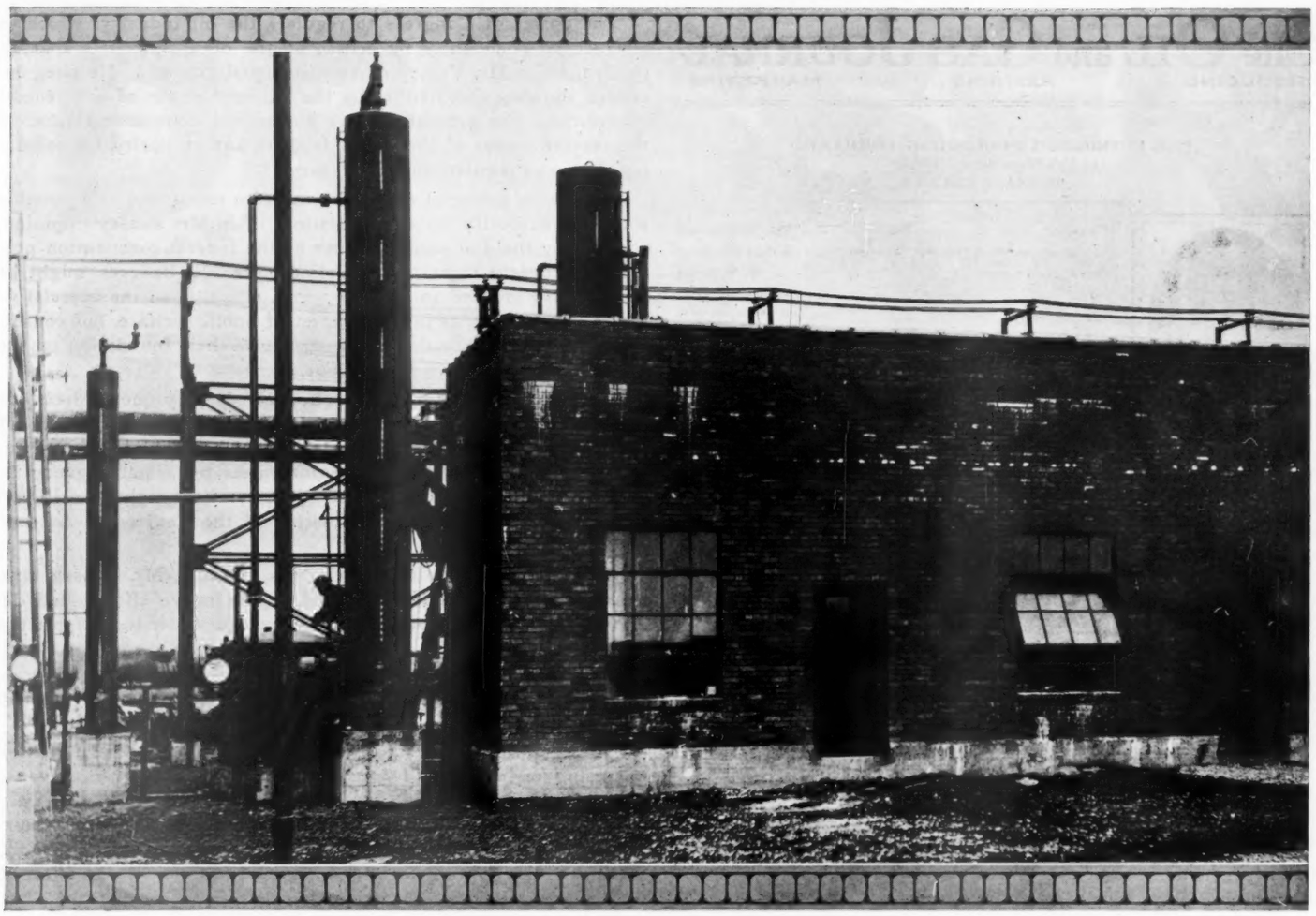
Mr. McGreal was born in Saugerties, N. Y., in 1873. He moved to Oil City, Pa., when a boy and was a telegraph operator for the National Transit Co., Cornwall and Reid, and the Associated Press in that city. Later he was employed as telegraph editor for The Oil City Derrick and from Oil City he went to Bartlesville, Okla., where he was employed as an oil writer by the Bartlesville Enterprise.

He came to Houston in 1914 for The Oil and Gas Journal and The Oil City Derrick.

His sudden death was the profoundest shock to many friends in the Gulf Coastal Field. He was very highly regarded there and many oil men scattered all over the world will regret to learn of the passing of this kindly, jovial friend.

Mr. McGreal was a storehouse of information concerning the Gulf Coast territory and his knowledge of the petroleum industry was at the service of any interested inquirer at all times.

The deceased is survived by his wife. A brother, John McGreal, is with the Prairie Pipe Line Co. in Kansas City, Mo. The funeral was held Wednesday morning from the Church of the Annunciation, and burial was made in Holy Cross cemetery, Houston.



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MEMBER AUDIT BUREAU OF CIRCULATIONS

A RALLYING POINT

Reports from Washington indicate that agitation for oil legislation will be a feature of the coming session of Congress. Several senators are said to have bills ready to introduce. As these senators are generally classed as radical it may be assumed that their proposed legislation will also be radical.

In the absence of any concerted effort by the oil industry to meet this situation it is, perhaps, fortunate that the Federal Oil Conservation Board has stepped forward with a definite plan of action.

Chairman Hubert Work, in his address before the Minerals Section of the American Bar Association, published in this issue of The Oil and Gas Journal, suggests "the constituting of a committee of nine, three of its ablest members selected by the American Bar Association, three practical engineers from the oil industry, with three representatives of the Government, to draft a bill for the Federal Oil Conservation Board to study and recheck, with a view to its introduction into the Seventieth Congress."

Here is a rallying point for the industry, under the auspices of the Federal Oil Board and the American Bar Association, to get together on a constructive program that can be contrasted with the merely political panaceas to be presented in Congress. The discussion of the industry's difficulties, legal and technical, should clear away the clouds that have beset it and give Congress and the country a much needed understanding of the problems of petroleum production.

With the light thus obtained it should be possible to determine what legislation, if any, is needed and what chances there are of obtaining its enactment, its constitutionality and its execution.

Pending the conclusion of this committee's labors, and the action of the Federal Oil Board on its report, Congress can reasonably be asked to postpone action upon the other legislative proposals that may be presented.

The futility, and even peril, of ill-informed efforts at oil legislation can be better understood after a perusal of the address of James A. Veasey before the American Bar Association, also published in this issue of The Oil and Gas Journal, outlining the difficulties from a legal standpoint.

The power of Congress to regulate the oil industry, which is assumed so confidently by critics of the oil business, is sharply challenged by Mr. Veasey on constitutional grounds. He cites decisions showing that neither by the inherent power of the general government, the general welfare clause, the commerce clause, or the reserve power of the states, is there any authority for federal legislation to regulate the oil industry.

The police power of the states, so often mentioned as a possible source of authority for oil legislation, is, in Mr. Veasey's opinion, checked by the due process clause of the federal constitution protecting property rights. The police power, he believes, might be successfully invoked to prevent waste, either upon the correlative rights of operators or in the interest of public welfare, but conservation statutes of broader scope must have their foundation on the principle of correlative rights alone.

On the proposal of unit operation Mr. Veasey quotes decisions to show that a legislative enactment empowering a majority of operators to enforce a uniform plan would be declared unconstitutional. On the alternative of enforcement by a state agency he quotes decisions that denial to an operator of the right to drill and produce at will would be in violation of the Fourteenth Amendment.

Concerning the conservation of gas pressure, Mr. Veasey says, however: "If the industry, through co-operative effort, shall decline to conserve gas pressure and volume in order to mitigate the evils of overproduction and to promote the public welfare by enlarging the recovery of oil, compulsory legislation designed to accomplish that purpose should be resorted to, if it can be upheld upon any conceivable theory of constitutional law."

These extracts illustrate the complexity of the legal situation regarding oil which it is rashly thought Congress can solve so easily by "passing a law." The Federal Oil Board, which has been studying the industry for two years, indulges in no such assumption. It recognizes the perplexities of the industry's problems and seeks to enlist the best legal and engineering talent in an effort to draft effective legislation, if new legislation is needed.

But throughout the addresses of Chairman Work of the Federal Oil Board and Mr. Veasey the dominating thought runs that it will be best if the industry itself deals with its own problems without the necessity for statutory regulation.

"What is needed," says Chairman Work, "is not Government interfering with business, but Government helping industry for its own and the public good." The Federal Oil Board, under his chairmanship, has practised that policy. It has done everything in its power to help the industry and this latest call upon the legal advisers of the industry to get together with this committee and frame a constructive plan is another example of that assistance.

He emphasizes the need for restraint, preferably from within, and again invites the industry to avoid the necessity of Governmental interference by regulating itself. At the same time he makes it clear that failing action by the industry it will be difficult to prevent attempts at Governmental regulation.

On this point the opinion of the legal advisers of the industry that most of the proposed legislation would be unconstitutional is subject to the interpretation of the courts or the persistence of popular agitation. It will be vastly better for the industry to do its own housecleaning.

The fact to be immediately brought home is that something is going to be done, either by co-operation within the industry or by interference from without. Popular opinion is being played upon by agitation about the waste of our natural resources by overproduction. Congress is being urged to act and Congress has never needed a second invitation to attack the oil business.

Seminole marked a stumble towards co-operation. Pecos County and West Texas offer opportunities for earlier and more effective steps. There is no question of the industry's ability to act if it makes up its mind. The situation demands unity and a decision. If operators know what is best for themselves and for the industry they will lose no time in getting together.

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DOMINATE

Runnels County Wildcat Strikes Oil

Abandoned Well Deepened 25 Feet Making 200 Bbls. May Be Second Noodle Creek. West Texas to New Peak

By C. D. Lockwood
Staff Correspondent, North and West Texas

FORT WORTH, Tex., Aug. 29.—While the cut in price of 80 per cent of West Texas crude to 60 cents per barrel flat was the most interesting development in the West Texas area during the past week, new records were being hung up in those fields and several important developments were recorded there.

However, it was a 2,550-foot wildcat in Runnels County that held the greatest interest for the operators at the opening of the current week. The wildcat producer is an old abandoned hole drilled 25 feet deeper and into production estimated to be anywhere from 200 to 250 bbls. daily.

The well is L. D. Ladd and associates' No. 1 R. M. McMillan in the NW part of the Domingo Diaz Survey. Mr. Ladd with B. C. Rhome, Jr., Ed Hill and Ben Simon, took over what is known as the Sillex block and drilled to 2,520 feet and abandoned the test July 13, 1927. Charles Dutton, drilling contractor and a group of Ballinger men, agreed to drill the hole 250 feet deeper for a quarter interest in the well and a quarter interest in the 3,000-acre block.

Last week the hole was cleaned out and deepened 25 feet. At 2,545 feet the bit went into sandy lime and started off making 1 bbl. per hour. Six-inch casing was set at 2,420 feet. The well's flow has increased since Saturday night and Monday it was reported to be doing 200 bbls. daily. Some reports credit it with doing 10 bbls. per hour while others say it is making 200 bbls. daily. The oil tested 42 gravity corrected and is free from sulphur or water. Production is believed to be coming from the Cisco lime. Many predict it will be a second Noodle Creek.

The well is 7 miles northeast of Ballinger and the Noodle Creek Pool is about 60 miles to the north. Noodle Creek at present is making 1,500 bbls. daily and some of the wells drilled more than a year ago are still doing 100 bbls. daily. Some time ago a well was drilled in the southeastern part of the county but failed to make a producer. It prompted the drilling of offsets which were likewise failures. The new well, which has all the appearances of being a producer, will be the first in Runnels County.

It was the mecca Monday for land men and scouts. One scout wired to his headquarters that a traffic problem had developed on the road leading to the well and that parking space was being bought at a premium.

Production to New Peak

West Texas production soared to a new peak last week when the estimated production for those fields totaled 171,315 bbls. The big increase came from Crane County where a flock of new wells sent that county's production to the new high of 106,373 bbls.

The price cut which brought the price of all crude in Crane, Upton, Crockett, Pecos and Winkler Counties down to 60 cents per barrel, has not shown any effect in drilling or in the reduction of production, nor is it expected to for several weeks.

Winkler County is being opened to drilling more extensively. Seven new locations were announced at the end of the week and the Southern Crude Oil Purchasing Co. has two wells at either end of the field that are of importance. That company's No. 1-T-88-A Handricks, SE NE, Section 44, Block 26, was completed at 3,077 feet making 1,085 bbls. It extended production 1½ miles to the north.

About 2 miles to the south the same company's No. 1-T-88 B. Hendricks, SE NE NW, Section 4, Block B-12, is showing for a good well. More than 400 feet of oil rose in the hole in 18 hours from pay at 2,785-95 feet. The well is shut down at 2,795 feet for pipe line connections.

In the Hurdle district Gulf Production Co.'s No. 4 Lane had a slight show at 1,948 feet and started flowing at 1,960 feet. The well flowed 260 bbls. per hour from that depth before it was pinched in. It has not been completed. In the same area Champlin Oil & Refining Co.'s No. 1 Lane, had the big pay at 1,962-64 feet and was flowing at the rate of 80 bbls. per hour.

Church-Fields Pool

Landreth Production Corp.'s No. 11 State Lands continues to be the stellar producer in the Church-Fields Pool. The well made 7,700 bbls. during the 24-hour period ending Saturday morning. During the first 18 days of the well's life it made 97,720 bbls. The storage on the Landreth strip lease has mounted to approximately 450,000 bbls. Ten 55,000-bbl. tanks have been erected on that lease, two more are under construction and 20 more 50,000-bbl. tanks have been ordered by the Landreth Corp.

In the same area the Simms Oil Co. and the Atlantic Oil Producing Co. had around 500,000 bbls. in storage on their Church-Fields leases. The joint properties of those companies have produced 1,120,000 bbls. of oil since the first well was completed.

Magnolia Petroleum Co. has purchased a tank farm site near Midland and will start erecting steel tankage there some time in the near future. The Magnolia Co. is surveying for a pipe line from the Midland tank farm to the Church-Fields Pool.

Three wells were completed in Pecos County during the past week. One was in the Pecos River bed and was a failure while the other two were on the Yates lease of the Mid-Kansas Oil & Gas Co. and the Transcontinental Oil Co. Another Pecos wildcat is being plugged at 1,454 feet.

Deep tests in three counties were abandoned. One was a 4,500-foot test in Kent County, another was a 4,200-foot test in Mitchell County and the other was a 3,500-foot test in Tom Green County. Shallower tests in Jones and Concho Counties were also failures.

Grosvenor Extension

The Grosvenor extension to the Fry Pool in Brown County of North Central Texas is claiming the attention of operators in that area. Cranfill & Reynolds completed two wells in that pool last week, one of which—No. 3 Smith—extended the pool one location to the east with a 350-bbl. well making their 38-acre lease look much better. The other well was good for 325 bbls. On the north line of wells in the same pool the Roxana Corp. brought in a 670-bbl. well.

Pipe line runs from that pool for the first half of August amounted to 30,528 bbls. and with the several new wells brought in during the past few days that total will be materially swelled by the end of the month. The runs for that period are as follows: Selby Oil Co., Ellis lease, 13,621 bbls.; Forest Oil Co., Smith lease, 15,220 bbls.; Cranfill & Reynolds, Smith lease (one well) 1,678 bbls.

The Fry Pool just southwest, is now producing around 12,000 bbls. daily but during the past week there was little other than routine work reported from that pool. The pool to the northeast promises to compare favorably with the Fry Pool.

Harper and associates' No. 1 J. F. Smith, 2 miles north of Brownwood, may open production there. Following a second shot of 60 quarts in sand at 1,577-87 feet, 500 feet of fluid rose in the hole. The well is to be put on the pump sometime this week to test it.

Coleman County

Roth & Faurots' No. 1 Lewis, in Coleman County, is being followed closely. It had the pay at 1,058-74 feet several days ago. The formation was shot and the casing collapsed. The well was put in shape to pump the latter part of the week and Saturday it is reported to have pumped 85 bbls. the first 17 hours. However, it was pumping off a head of oil and what it will do steadily on the pump will not be known for several days.

Empire Gas & Fuel Co.'s No. 1 Johnson, NW cor., Section 146, G. H. & H. Survey, Callahan County, was opened up this week when the Prairie Pipe Line Co. completed a 14-mile lateral line to the well from its trunk system. It is making around 500 bbls. of 49 gravity oil daily along with 23,500,000 feet of gas and some sulphur water. The rock pressure of the well is 1,450 pounds per square inch. Production is believed to be coming from the Ellenburger lime.

As the well is permitted to flow it is believed the gas flow will gradually increase. Because of the high rock pressure the well is pinched in to some extent to prevent it demolishing the separator. The Empire Co.'s offset, 800 feet to the north, is drilling at 1,000 feet and the Manhattan Oil Co. is moving in material for the northeast offset to the well.

Cooke County's daily average production continues to arrive and 128 wells from the Muenster and Bulcher pools had a daily average of 6,307 bbls. last week. The best completion of the week in Cooke County was The Texas Company's No. 4 Dennis, in the Bulcher Pool which made 530 bbls. natural from sand at 1,296 to 1,304 feet.

In the Wichita Falls district there was little aside from the routine completions. Jack County's shallow producers are gradually pushing production upward in that county. Last week the county averaged 940 bbls. from its shallow wells.

Production in the Ranger and Wichita Falls districts gave North Central Texas a net increase of 528 bbls. during the past week. Wichita Falls district production declined 179 bbls. while the production in the Ranger district gained 707 bbls. Most of the gain was recorded in Brown and Callahan Counties.

WILDCAT OPERATIONS IN WEST TEXAS

Week ending August 27, 1927

Company, Farm and Location—	Remarks—
ANDREWS COUNTY	
Calvin & Belt's No. 1 Ratliff & Bedford, C NE, Sec. 16, Blk A-54	Shut down for water 350 ft.
J. S. Cosden's No. 1 Ratliff & Bedford, C SE Sec. 8, Blk. 73, Public School Land	Shut down to repair rig 410 ft.
Sartain Oil Co. et al's (was Deep Rock Oil Co.'s) No. 1 W. J. Harris, C SE Sec. 12, Blk. A-46, Public School land, elev. 3,167 ft.	Shut down 400 ft.
B. B. McKennon's (was Neff et al's) No. 1 J. S. Means, C SE Sec. 12, Blk. A-35, Public School Land	Drilling 825 ft.
A. G. Carter & Zweifel's No. 1 Cowden, C SE Sec. 18, Blk. A-52, Public School Land Sur., elev. 3,156 ft.	Top salt 1,375 ft.; shut down for orders 3,500 ft.; will deepen.
BREWSTER COUNTY	
Van McPhail's No. 1 McIntyre, SE cor. Sec. 59, Blk. 352, 7 mi. S of Alpine	Straightening crooked hole at 1,000 ft.
Wilcox & Anderson's No. 1 Gage, Sec. 8, Blk. 300, T. C. R. R. Sur.	Running 10-in. to 590 ft.
COKE COUNTY	
W. H. Brown et al's No. 1 W. L. Foster, SE cor. Sec. 142, Blk. 2, H. & T. C. Sur.	Shut down for casing 425 ft.
Danciger O. & R. Co.'s No. 1 Mrs. Byrnes, Clinton Sur.	Shut down for 12-in. 855 ft.
Lipan Oil Co.'s No. 1 S. M. Conner, Sec. 71, Blk. 2, H. & T. C. Sur.	Cleaning out 1,215 ft.
CONCHO COUNTY	
The Exploration Co.'s No. 1 Hartgrove, Blk. 240, J. Schouch Sur., elev. 1,718 ft.	Fishing casing 1,930 ft.
CRANE COUNTY	
Gulf Production Co.'s No. 2 Waddell, NE cor. Sec. 10, Blk. B-25, elev. 2,741 ft.	Top brown lime 3,068 ft.; set 6-in. 3,077 ft.; top gray lime 3,095 ft.; first oil 3,194-3,200 ft.; top pay 3,219 ft.; fishing for bailer at 3,500 ft., gray lime; flowed 20 bbls.
Marland Oil Co.'s No. 1 Union Land, E cor. of W ¼ Sec. 28, Blk. 35, H. & T. C. Sur.	Fishing for tools 330 ft.
CROCKETT COUNTY	
George Anderson and Marland Oil Co.'s No. 1 University	Hole full sulphur water 1,800 ft.; drilling red rock 2,025 ft.
V. T. Bolin & Co.'s No. 1 P. C. Coates, NW cor. SW Sec. 4, Blk. 2, I. & G. N. Sur.	Shut down 2,110 ft.
Corbett & Gill's No. 1 Todd	Spudding.
Corbett & Gill's No. 1 University	Rigging up; spudding.
Gulf Production Co.'s No. 2 Powell-D	Top salt 1,060 ft.; drilling 1,300 ft.
Gulf Production Co.'s No. 1 G. L. Thompson, SW cor. Sec. 71, Blk. 1, I. & G. N. Sur.	Cemented 10-in. 512 ft.; drilling anhydrite 540 ft.
Epeneaur et al's No. 1 Noelke, SW Sec. 30, Blk. GG, G. C. & S. F. Sur.	Spudded and shut down.

(Continued on Page 132)

NORTH CENTRAL TEXAS AND WEST TEXAS

Estimated Production for Week Ending August 28, 1927

Ranger District—	Production
Brown County	20,867
Callahan County	4,855
Coleman County	1,231
Comanche County	1,485
Palo Pinto County	495
Ranger	12,865
Shackelford County	5,947
Stephens County	9,068
Total Ranger district	56,813
Wichita Falls District—	
Archer County	25,481
Baylor County	59
Clay County	562
Cooke County	6,307
Jack County	940
Montague County	11,074
Throckmorton County	1,658
Wichita County	29,668
Wilbarger County	11,981
Young County	14,270
Total Wichita Falls district	102,030
Total North Central Texas	158,843
West Texas District—	
Big Lake Field	25,733
Crane County	106,370
Crockett County	1,651
*Ector County	
**Garza County	
Glasscock County	38
Howard County	3,727
Jones County	1,538
Loving County	25
Mitchell County	3,813
Pecos County	5,338
Scurry County	45
Upton County	19,454
Winkler County	3,578
Total West Texas	171,315
Grand Total North and West Texas	330,158
Increase	8,356

*Ector County wells shut in for storage.
**Garsa County well to be dropped from report; making 10 bbls. per month.

WEST TEXAS COMPLETIONS

Concho County

Associated Petroleum Co.'s No. 1 Sam Waring A, Section 2035, J. W. Godhart

Survey, was a hole full of sulphur water at 2,616 feet and abandoned at 2,617 feet.

Crane County

Eastland Oil Co. and Collett's No. 3 University topped the pay at 2,868 feet and bottomed at 2,947 feet and made 1,350 bbls. initial. Landreth Production Co.'s No. 9 State Land, topped the pay at 2,808 feet and bottomed at 3,000 feet. The formation at 2,814 to 2,974 feet was shot with 300 quarts and made 372 bbls. initial. Same operators' No. 12 State Land, made 150 bbls. initial with air lift after a 300-quart shot at 2,825 to 2,977 feet. Landreth Corp.'s No. 13 State Land was shot with 300 quarts at 2,825 to 2,977 feet and made 160 bbls. initial.

Pecos Oil Co.'s No. 4 University was shot with 260 quarts at 2,793 to 2,865 feet and made 292 bbls. initial. Simms Oil Co. and Atlantic Oil Producing Co.'s No. 5 University D, topped the pay at 2,801 feet and drilled to 2,951 feet. The well was shot with 300 quarts at those depths and made 3,000 bbls. initial. The Texas Company's No. 1 Beasley was shot with 260 quarts at 2,845 to 2,975 feet and made 80 bbls. initial. Tidal Oil Co.'s No. 1 University C topped the pay at 2,810 feet and bottomed at 2,936 feet. The well was shot at 2,860 to 2,936 feet with 90 quarts without results but made 140 bbls. initial when it was shot with 200 quarts at 2,846 to 2,936 feet.

Gulf Production Co.'s No. 27 McElroy is flowing 25 bbls. per hour from pay at 2,815 to 2,935 feet. Gulf Co.'s No. 25 J. T. McElroy was shot with 140 quarts at 2,805 to 2,903 feet and is making 300 bbls. daily. Same company's No. 30 McElroy flowed 660 bbls. initial but made 880 bbls. initial after the second shot of 220 quarts at 2,757 to 2,869 feet. Gulf Co.s No. 31 McElroy was shot with 80 quarts at 2,744 to 2,828 feet and made 522 bbls. initial. Gulf Co's No. 32 McElroy was shot with 120 quarts at 2,805 to 2,923 feet and made 205 bbls. initial. Gulf Co.'s No. 34 McElroy made 140 bbls. after a 160-quart shot at 2,825 to 2,910 feet. In the Hurdle district Gulf Co.'s No. 6 J. F. Lane was completed as a 432-bbl. well from pay at 1,957 to 2,003 feet.

Jones County

Gillette & Hickery's No. 1 M. E. Young, Tevanio Survey No. 190, was dry and abandoned at 2,040 feet.

Kent County

Douglas Oil Co.'s No. 1 Scoggins, Section 57, Block 7, H. & T. C. Survey, was dry and abandoned at 4,500 feet.

Mitchell County

Magnolia Petroleum Co.'s No. 1 T. L. McKinney, Section 20, Block 29, T. P. Survey T-1-N, was dry and abandoned at 4,308 feet.

Pecos County

Allsman & Bell's No. 2 Pecos River Bed was dry and abandoned at 1,509 feet. Mid-Kansas Oil & Gas Co. and Transcontinental Oil Co.'s No. 7 I. G. Yates A, topped the pay at 1,227 feet and was drilled to 1,277 feet. The well flowed 297 bbls. August 17 and is now flowing 15 bbls. per hour through a 3-15-inch choke. The same operators' No. 3 I. G. Yates B, topped the pay at 888 feet and was bottomed at 913 feet. It was opened for two hours and flowed through two 3-inch flow lines and made 525 bbls. the first hour and 457 bbls. the second hour. Montray Oil Co.'s No. 1 A. G. Robertson is being plugged at 1,454 feet.

Tom Green County

Marland Oil Co.'s No. 1 Llana County School Lands No. 964 was dry and abandoned at 3,505 feet, steel line measurement.

Upton County

Roxana Petroleum Corp.'s No. 18 Bowen, topped the pay at 2,190 feet and was bottomed at 2,238 feet. The hole was plugged back to 2,236 feet and the formation at 2,177 to 2,219 feet shot with 150 quarts. The well is swabbing 40 bbls. of oil and 4 bbls. of water.

Winkler County

Southern Crude Oil Purchasing Co.'s No. 1-T-88 Hendricks A, topped the pay at 2,930 feet and made 660 bbls. the first 24 hours. The hole was drilled on down to 3,077 feet and the well made 1,085 bbls. initial.

NORTH CENTRAL TEXAS COMPLETIONS

Archer County

Kruger & Staley's No. 5 Turbeville, made 40 bbls. initial from sand at 1,502-12 feet. Location was abandoned for J. F. Baker's No. 1 Edwards.

Callahan County

Mortimer and associates' No. 1 Brown was dry and abandoned at 803 feet.

Cooke County

Kewanee Oil & Gas Co.'s No. 2 Timmis, made 120 bbls. initial from sand at 1,386 to 1,404 feet; total depth 1,409 feet. Scientific Oil Co.'s No. 1 Allen was dry and abandoned at 2,136 feet. Sowell Brothers' No. 1 Schmitz was completed at 1,682-97 feet and made 45 bbls. initial. The Texas Company's No. 4 Dennis was the best completion of the week in Cooke County and it made 530 bbls. initial from sand at 1,296 to 1,304 feet. The Texas Company and McElreath & Suggett's No. 1 Suggett was junked and abandoned at 1,808 feet.

Brown County

Alford Oil Co.'s No. 1 Leslie, is making 15 bbls. of oil and 50 bbls. of water at 1,342-44 feet. Bowers and associates' No. 1 Mauldin was dry and abandoned at 1,405 feet. Charter Oil Co.'s No. 3 Byler, made 103 bbls. initial from sand at 1,323-34 feet. Cranfield & Reynolds' No. 2 Smith, had the sand at 1,320-34 feet and made 325 bbls. initial. The same operators' No. 3 Smith was a 350-bbl. well at 1,329-41 feet. Prairie Oil & Gas Co.'s No. 3-B Gafford, was shot with 10 quarts at 1,258-68 feet and made 15 bbls. initial. Roxana Petroleum Corp.'s No. 2 Smith made 667 bbls. initial from sand at 1,318-44 feet. Shoup Jr.'s No. 31 Byler, was shot with 8 quarts at 1,268 to 1,276 feet and made 10 bbls. initial. Sinclair Oil & Gas Co.'s No. 8 Shore was shot with 30 quarts at 2,286-98 feet and is making 10 bbls. daily. The Texas Company's No. 21 Hickman was dry and abandoned at 1,445 feet. Wentz Oil Corp.'s No. 30 Shore, made 30 bbls. initial from sand at 1,333-39 feet. The same company's No. 31 Shore was a 30-bbl. well at 1,326-43 feet.

Denton County

Big Indian Oil & Development Co.'s No. 1 Forester was dry and abandoned at 2,502 feet. Rondeau and associates' No. 1 Owens was dry and abandoned at 2,004 feet.

Eastland County

Adamson & Bearman's No. 2 Rosenquest was shot with 40 quarts at 1,452-63 feet and made 100 bbls. initial. Panhandle Refining Co.'s No. 3 Hightower is a 30-bbl. well at 1,172-92 feet. States Oil Corp.'s No. 2 Silbey came in making 1,710 bbls. from 3,059-62 feet but dropped down to 400 bbls. daily. The Texas Company's No. 17 Hightower is a 30-bbl. well at 1,181 to 1,202 feet. Chestnut & Smith Corp.'s No. 1 was dry and abandoned at 3,458 feet. Root and associates' No. 1 Pelfrey is making 4,000,000 feet of gas from 3,238 to 3,281 feet.

Montague County

Bridwell & Heydrick's No. 1 McGaughey made 27 bbls. initial from 1,142-52 feet.

Palo Pinto County

Dewitt and associates' No. 1 Humphries was junked at 1,065 feet.

Stephens County

Hoffman's No. 1 Ledbetter was shot with 40 quarts at 2,263-88 feet without results and abandoned at 2,293 feet.

Shackelford County

Wentz Oil Corp.'s No. 11 Reynolds made 30 bbls. initial from sand at 1,274-87 feet.

Throckmorton County

Red Bank Oil Co.'s No. 2 Cole, is estimated to be making 5,000,000 feet of gas and 215 bbls. of oil at 4,282-92 feet; total depth 4,300.

Wichita County

The Ascott Co.'s No. 1-A Tyson was dry and abandoned at 2,257½ feet. The Texas Company's No. 64 Honaker was shot with 20 quarts at 990 to 1,002 feet and made 6 bbls. initial. Wilson Drilling Co. and associates' No. 4 Kemp and Kempner made 30 bbls. initial from sand at 1,814-19 feet. Humble Oil & Refining Co.'s No. 1 Castleberry A, pumped 38 bbls. of oil, and 17 bbls. of water the first 21 hours from sand at 1,535-40 feet. Verschoyle & Vaughn's No. 1 Ancell was dry and abandoned at 1,825 feet.

Young County

E. S. Carey's No. 1 Boley was dry and abandoned at 1,200 feet. Rose and associates' No. 1 Keith was dry and abandoned at 811 feet. The Texas Company's No. 1 Deitrich was dry and abandoned at 1,277 feet. Coones & Hitchkiss' No. 4 McCluskey was temporarily abandoned at 2,600 feet. Phillips Petroleum Co.'s No. 2 Whittenburg had lime at 3,712-38 feet and broken lime at 3,885 to 3,925 feet. The well is estimated to be good for 50 bbls. and has made 15 bbls. every four hours for four days. The Ruthada Oil Co.'s No. 3-A Stovall was plugged back from 4,444 to 4,300 feet and shot with 105 quarts at 4,230 to 4,300 feet and making 75 bbls. daily.

THREE PRODUCERS IN LITTLE RIVER POOL. LATE NEWS FROM OTHER AREAS

The Little River Pool of the Greater Seminole Field is at this time the most important and most interesting part of the petroleum picture. It has been the subject of much speculation as to future operation. The rulings of the Seminole Advisory Committee and Umpire Collins decree that after the second well in the pool is completed, all wells shall be shut in to a production of 100 bbls. daily.

There are now three wells in the pool, the discovery well, Indian Territory Illuminating Oil Co.'s No. 1 House, in Section 1-7-6; Blackwell Oil & Gas Co.'s No. 1 Nitey, in Section 35-8-6, a diagonal offset to the House well, and the Indian Territory's No. 1 Dungan, in Section 35-8-6, a quarter mile west and one location north of the discovery well. The three wells now have a combined production of 12,407 bbls., and the House well has declined slightly following the drilling in of the offset well.

With one exception all companies operating in the pool have signified their intention of abiding by the ruling of the umpire and the committee. One company is sufficient to upset the most carefully laid plans.

The Indian Territory Illuminating Oil Co. is reported to have agreed to the ruling, and in the opinion of many students of oil production, it is thought that if its House well is shut in to 100 bbls., the salt water will soon ruin its chances of ever coming back. The well has been making 5 per cent water with a back pressure of 50 pounds, and if the output be limited to 100 barrels per day instead of the 7,354 it is now making, it will be definitely out of the running.

The new wells have been in for three days with no sign of any limitation of production, and a hurriedly-called meeting of the advisory committee was held on Monday in Tulsa at which time plans for the operation of this area were discussed. The committee which is composed of five practical oil officials includes George A. Moody, vice president of the Mid-Continent Petroleum Corp.; R. B. Pringle, vice president of the Independent Oil & Gas Co.; Howard N. Cole, vice president of the Pure Oil Co.; Joe S. Sidwell, of the Prairie Oil & Gas Co., and J. J. Conry, general superintendent of the Carter Oil Co.

At Monday's meeting, several plans were advanced for the operation of the Little River wells. The plan which seemed to receive most favor was to have all wells drilled into the sand, and to permit them to flow unrestricted for a period of three days in order to determine what their potential output may be, after which they are to be shut in to the prescribed figure of 100 bbls. daily.

As the pool now stands, Little River presents the same outlook as Seminole City, Bowlegs and Earlsboro did early in their productive life. One finds three wells making a good production. Two of the wells are only 2 feet into the sand, while it is reported that the discovery well has penetrated the sand 20 feet. The wells are a quarter of a mile apart, sufficient space to cause rigs to dot the landscape for at least a half-mile in addition to the territory they now cover. There are now 10 wells reasonably close to the sand which may be expected to touch the Wilcox within two or three weeks, and an output of 50,000 bbls. from these wells would be normal considering the experiences of the other pools of the field.

OKLAHOMA

The Greater Seminole area, including the Little River Pool, produced 447,984 bbls. from 720 wells, divided as follows:

Bowlegs	163,648
Little River	12,407
Earlsboro	161,591
Seminole	80,688
Searight	29,658
Total	447,992

Aside from the new wells in the Little River area there were no important extensions to the field. The most interesting wells are listed below. A dry hole in the northeast side of Earlsboro is Magnolia Petroleum Co.'s No. 3 Simpson, NE cor. SW SE, Section 10-9-5, which has a hole full of water at a total depth of 4,358 feet. Gypsy Oil Co.'s No. 1 Bruner, NW cor. NE, Section 10-9-5, has a hole full of oil in the Wilcox sand found at 4,255-60 feet. Magnolia Petroleum Co.'s No. 1 Simpson, NE cor. NW SE, Section 10-9-5, will swab a hole full of oil from the Wilcox sand 4,342-45 feet. Amerada Petroleum Corp.'s No. 1 Rogers, SW cor. SE SE, Section 2-9-5, has a show of oil in the Viola lime at 4,165 feet and a total depth of 4,210 feet. Gypsy Oil Co.'s No. 2 Sango, NW cor. SW NE, Section 1-9-5, is drilling at 4,237 feet after finding the Simpson sand at 4,190 feet. It is reported that this well is running 40 feet lower than the other wells which have been drilled in this region.

In the Garber Field of Garfield County, the Marland Oil Co.'s No. 1 Chambers, the deepest producing well, gauged 1,397 bbls. on Tuesday morning of this week. This well is located NE cor SW, Section 19-23-3w.

SOUTHWEST TEXAS

SAN ANTONIO, Tex., Aug. 30.—Sun Oil Co.'s No. 2 Talley, in the new Dale Field, Caldwell County, at 2,190 feet total depth has the slush pit covered with oil and is setting casing at 2,170 feet on top of the Serpentine. It is the first test to top the pay since the discovery well and is three-quarters of a mile east of the discovery. It makes the field look much bigger than it did at first.

GULF COAST

HOUSTON, Texas., Aug. 30.—Three wells in the Spindletop Field started off with a combined initial produtcion of 4,007 bbls. The Gulf Production Co.'s No. 11 Oakwood Realty Co., was the best of the three with a production of 2,522 bbls. In the Pierce Junction Field the Navarro Oil Co.'s No. 2 Cain is a 2,000-barrell well and J. F. Bashara's No. B-1 Fee, started at 1,275 bbls.

PECOS COUNTY

FORT WORTH, Tex., Aug. 30.—Allsman & Bell's No. 1 Pecos Riverbed, in the Pecos Field, was shot with 90 quarts at 1,040-55 feet and bridged 80 feet off bottom. It is the first well in the Pecos Field to be shot. Production before the shot was 200 barrels daily. Red Bank Oil Co.'s No. 1 M. A. Smith, formerly Mazda Oil Co.'s No. 1, Section 24, Block 194, is flowing 350 bbls. daily and is shut down at 1,624 feet. It is reliably reported the Ozark Pipe Line Co., a subsidiary of the Roxana, will build a line into Pecos when the Roxana's production warrants it. The line will be built from the field to the railroad and probably to McCamey.

MONTANA

CASPER, Wyo., Aug. 30.—On Section

(Continued on Page 133)

Panhandle Production Increased

McIlroy Pool Extended. South Plains and Gray County Wildcats Interest Operators. Hutchinson County Gains

By James H. Dameron
Staff Correspondent, Texas Panhandle Fields

AMARILLO, Tex., Aug. 29.—Coincident with a 20-cent slash in prices for Hutchinson and Carson County crudes and the cutting of Wheeler County crude down to the same level of 75 cents flat, the Panhandle's week of activities was far more colorful than it has been in weeks. In addition to the checking of the slide in daily average production which took the field below 100,000 bbls. for the first time in months, several wildcats in the far-flung borders of the field were the scenes of interesting developments.

The price cut, which brought the price of Hutchinson and Carson County crude down from 95 cents per bbl. to 75 cents per bbl. and took Wheeler County crude off the gravity purchasing basis and classed it with the other two counties, came as a surprise to many Panhandle operators. Gray County, which produces a good quality sweet crude, was not affected. The price was effective August 23 and met by all purchasing companies, effective the same date.

Pipe line companies are reluctant to take new connections in Hutchinson County and have been for months because of the sluggish demand for that crude. While the operators have curtailed drilling, production in the past few months has dropped several thousand bbls., storage in the field has continued to increase and at the present rate of production there is storage room in the field for approximately 45 days' production. During the past two months storage has not been increasing rapidly, but with the coming of the winter months storage is expected to pile up at a much faster rate.

Gray County Most Active

Gray County crude, because of its "sweet" qualities, enjoys a good demand with one company paying a 10-cent premium for its connections. Gray County is the most active area in the Panhandle today and its production has been around 10,000 bbls. daily for several weeks.

An unusual number of completions for such a dull season in the Panhandle were recorded during the week and nine new wells added 3,700 bbls. of flush production to the output of the field. Eight wells were completed while the other and the largest is to be deepened. Of the completions Pure Oil Co.'s No. 6 Johnson, Section 70, Block 46, Hutchinson County, was the best. It made 678 bbls. initial after a 180-quart shot at 2,868 to 2,908 feet. Five gas wells completed last week had a combined open flow capacity of 190,000,000 feet of gas. Two of the wells were in the Sanford area of Hutchinson County and each was good for 70,000,000 feet of gas.

Good McIlroy Pool Well

Roxana Petroleum Corp.'s No. 1 Ellis Cockrell, Section 3, Block B-3, D. & S. E. Survey, which extended the McIlroy Pool, in Hutchinson County, was the star performer of the week. The well topped the pay at 2,860 feet and drilled itself in making around 45,000,000 feet of gas and 500 or 600 bbls. daily. After blowing wild a few days it was brought under control. Production is being saved and the well's production climbed to 1,000 bbls. daily. It continued to increase and late in the week it was making 2,000 bbls. daily. During the past week the well's daily average was 1,765 bbls. It has not been completed and will probably be deepened during the current week.

Among the completions was a wildcat producer in Moore County, Skelly Oil Co.'s No. 1 Armstrong and Bird, SW cor. Freeman Brazemore Survey. The well was completed flowing 118 bbls. from pay at 3,179 to 3,212 feet. It had 15,000,000 feet of gas at 2,625 to 2,780 feet. The well is a short distance east of Moore County's first well, a 35-bbl. producer, shut down because of the lack of storage. It is on the eastern line of Moore County. Another Moore County completion was Moore County Oil Co.'s No. 1 J. T. Sneed, which was completed as a 15,000,000-foot gas well.

Air Lift Experiments

More experiments were made last week with air lift on the A. D. Morton & Co.'s No. 1 Reeder, Section 191, Block 3-T. It is reported that the last experiments had been more successful than all the others. During the last trial the well made 200 bbls. daily. However, neither the Morton wildcat nor the Skelly wildcat are carried on production because both wells are at present shut down for lack of adequate storage on the respective leases.

Panhandle production was up 2,730 bbls. in daily average last week due principally to the gains in Hutchinson County. Gray County also made a gain due to the new flush production in the Gulf-Saunders area and that county's production is now above 10,000 bbls. daily. Most of the gains in Hutchinson County was from the Roxana Corp.'s No. 1 Cockrell. The Alamoso Co.'s No. 1 Sanford in the Sanford area helped to the extent of 520 bbls. daily when it was connected to a pipe line and produced by air lift. Pure Oil Co.'s 700-bbl. well in Hutchinson was another factor in boosting the production of Hutchinson County. Production in the other counties practically marked time.

Production Gain

Production by counties follows:

Carson County	9,295
Hutchinson County	80,315
Gray County	10,120
Moore County	50
Potter County	30
Wheeler County	1,615
Total	101,425
Total last week	98,695
Gain	2,730

A few wells have been taken off production in Panhandle every week for the past few weeks because their production had gone down to a point where it made it unprofitable to operate the wells. The recent price cut is expected to cause operators to abandon several more small pumpers in the field.

South Plains Wildcat

In the wildcat areas the South Plains territory and Gray County held the most interest for the operators. In the South Plains territory Donnell Petroleum Co.'s No. 2 Mullican, Hale County, was the scene of much excitement the first part of the week when it got a shallow showing around 400 feet. The test is close to No. 1 Mullican, which is estimated to be a pumper capable of making from 2 to 5 bbls. daily.

No. 2 topped the pay in sandy shale at 405 feet and got a very slight show of oil in the next 5 feet of drilling. It made half a bailer of oil and three bailers of salt water per day from that depth. Eight and one-quarter-inch casing was set at 385 feet. The hole is caving badly. The gravity of the crude is 37.8 degrees corrected.

The owners have shut down the test. It is likely that 6-inch casing will be run to the top of the sand and if the well is not a commercial producer at the shallow depth, it will probably be deepened. No 1 Mullican is expected to be tested soon after a definite decision is made concerning No. 2. No. 1 Mullican appears to have a better chance of being completed as a commercial well.

The shallow showing is expected to stimulate activity in the South Plains area, which is already fairly active. However, the weak crude market is expected to keep the "damper" on the area to a great extent. The find on the Mullican ranch served to increase the buying of acreage in Hale County, but not to any great extent.

South of the Granite

One of the most interesting tests in the Panhandle in several months is the St. Clair Petroleum Co.'s No. 1 Crews, Section 9, Block 25, Gray County, and believed to be south of the granite ridge. The well is a geological upset because, according to logs of other wells drilled in that area, the well is south of the ridge and was not regarded as being in territory likely to produce oil. However, after being shot with 300 quarts at 2,720 to 2,815 feet the well is spraying around 10 bbls. daily and is being cleaned out. It was estimated to be a 75-bbl. well.

This well had gas several months ago at the regular depth. One explanation of the oil and gas showing is that part of the ridge had eroded and permitted oil, on its upward migration, to flow through the opening caused by the erosion and be trapped in the vicinity of where the St. Clair well was drilled.

Recently acreage in that immediate territory went begging, but today it is finding a fairly good market. Amerada Petroleum Corp., Midwest Exploration Co., Humble Oil & Refining Co., Phillips Petroleum Co. and Magnolia Petroleum Co. are among the recent buyers in that area.

Another interesting test in Gray County is the Gray County Petroleum Co.'s No. 1 A. Chapman, Section 70, Block 25. The well made 180 bbls. in 18 hours on the swab from granite wash at 2,840-52 feet. It is now shut down awaiting the erection of additional storage to give it a more complete test. It is about 7 miles due north of the St. Clair Co.'s No. 1 Crews.

Hartley County

Deep Rock Oil Co.'s No. 1 Lyman & Balfour, Section 9, Block 2, Hartley

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WILDCAT OPERATIONS IN PANHANDLE

Week Ending August 27, 1927

ARMSTRONG COUNTY

Company, Well, Farm Name, Section and Block— Remarks—

Meadows et al's No. 1 E. D. Harrell, C Sec. 100, Blk. A-6, A. & G. Sur. — Drlg., 3,150 ft.

United Oil & Trust Co.'s No. 1 J. P. Reck, Sec. 162, Blk. 4, H. & G. N. Sur. — Spudded and temp. abd., 298 ft.

BAILEY COUNTY

Humble Oil & Refining Co.'s No. 1 W. H. Fuqua, cen. E. half Sec. 117, Blk. A, Melvin, Blum & Blum, Sur. — Location.

BRISCOE COUNTY

C. S. Rice's No. 1 J. C. Anderson, SE cor. NW NW, Sec. 22, Blk. B-3, B. S. & F. Sur. — S.D., 1,620 ft.

CARSON COUNTY

Amatex Dev. Co.'s No. 1 E. S. Polling, Sec. 22, Blk. 2-Y. — S.R., 2,110 ft.

Empire G. & F. Co.'s No. 1 Burnett Estate, Sec. 55, Blk. 5, I. & G. N. Sur. — Drlg., 715 ft.

Empire G. & F. Co.'s No. 2 Burnett Estate, Sec. 23, Blk. 5, I. & G. N. Sur. — Drlg., 532 ft.

Empire G. & F. Co.'s No. 3 Burnett Estate, Sec. 44, Blk. 5, I. & G. N. Sur. — Drlg., 875 ft.

Empire G. & F. Co.'s No. 7 Burnett Estate, Sec. 49, Blk. 5, I. & G. N. Sur. — Drlg., 950 ft.

Empire G. & F. Co.'s No. 9 Burnett Estate, Sec. 50, Blk. 5, I. & G. N. Sur. — Drlg. 915 ft.

Empire G. & F. Co.'s No. 10 Burnett Estate, Sec. 52, Blk. 5, I. & G. N. Sur. — Drlg., 1,650 ft.

W. A. Gamble's No. 1-A John Dies, 30 ft N of cen., Lot 7, Blk. 11, Panhandle Townsite, Sec. 69, Blk 2, T. T. R. R. Sur. — S.D., 1,340 ft.

Marland Oil Co.'s No. 1 Burnett-J. C NE NE, Sec. 121, Blk. 5 — Small spray oil, 3,072-3,130 ft; salt water, 3,140-45 ft; dry granite wash, 3,245-88 ft; dry at 3,727 ft; to P.B., for gas.

Marston Oil Co.'s No. 1 J. L. Noel — Pulling 6-in., 3,064 ft.

Navajo Oil Co.'s No. 1 E. S. Polling, Sec. 22, Blk. 2-Y. — Set 6-in. 2,496 ft., drlg. 2,620 ft.

Panhandle Northern Oil Co., Sec. 62, Blk. 2, T. T. R. R. Sur. — Cellar.

Stubblefield et al's No. 1 E. Cooper, SW cor. NE Sec. 5, Blk. 9, I. & G. N. Sur. — Drlg., 2,400 ft.

Vitek Oil Co.'s No. 1 J. H. Eller, NE cor. NW Sec. 200, Blk. 3 — S.D., 720 ft.

CASTRO COUNTY

Colorado O. & R. Co.'s No. 1 M. Siemmons, SW cor. Sec. 78, Blk. M-17, B. S. & F. Sur. — Rig blown down.

Mystery Oil Co.'s No. 1 J. I. Crum, SE cor. NE Sec. 333, Blk. M-6, S. K. & K. Sur. — S.D., 510 ft. for casing.

CHILDRESS COUNTY

Brookins et al's No. 1 Mrs. Givens, 600 ft N and W of SE cor. Sec. 676, W. & M. W. Sur. — Spudded and S.D.

Continental Oil Co. & Marland Oil Co.'s No. 1 B. P. Smith, cen. NE, Sec. 14, Blk. 9 — Drlg., 1,020 ft.

Hoover & Calloway's No. 1 O. L. Tucker, Sec. 736, Hagard Sur. — Spudded and S.D.

C. L. Sloane et al's No. 1 B. P. Smith, Sur. 49, F. P. Knott lands — Set 6-in. pipe at 2,902 ft.

COLLINGSWORTH COUNTY

Harmon & Deems' No. 1 Wilson (Scott), Sec. 44, Blk. 21. — Loc.; temp. abd.

COTTLE COUNTY

Exploration Co.'s No. 1 Richards — Spudded and S.D.

Sun Oil Co.'s No. 1 Tom Burnett, C NW SE, Sec. 6, Blk. L, S. P. R. R. Sur. — D.&A., 3,510 ft.

DALLAM COUNTY

James et al's No. 1 fee, Sec. 9, 47½ — Pull. 6-in. T.D., 2,865 ft.

Wood Bros. et al's No. 1 Capitol Synd., Sec. 19, Blk. 17. — 6-in. 3,375 ft; S.D., 3,504 ft; S.L.M.

Marland Oil Co.'s No. 1 A. M. James, C SW W half, Sec. 21, S. H. McElreath Sur. — Spudding.

Marland Oil Co. et al's No. 1 Capitol Synd., Sec. 36 Blk. 18, Capitol Synd. land — Drlg., 1,980 ft.

DEAF SMITH COUNTY

Julien & DeGrace's No. 1 Mrs. R. A. Hindley, Sec. 47, Blk. K-3 — S.D., 520 ft.

Red Hill Oil Corp.'s No. 1 Barrett, Sec. 93, Blk. K-4 — S.D., 710 ft.

DONLEY COUNTY

A. T. Drlg. Co.'s No. 1 F. E. Harington, Sec. 39, Blk. 3-C — 1,200 ft. water, 3,115-22 ft; show gas, 3,140-60 ft; dry granite wash, 3,260-93 ft; S.D., 3,498 ft. for water.

DICKENS COUNTY

Bowser Mickels et al's No. 1 Pitchford ranch, Sec. 1, Blk. 1, Sam Lazarus Sur. — S.D., 3,355 ft; cor. depth; T.A.

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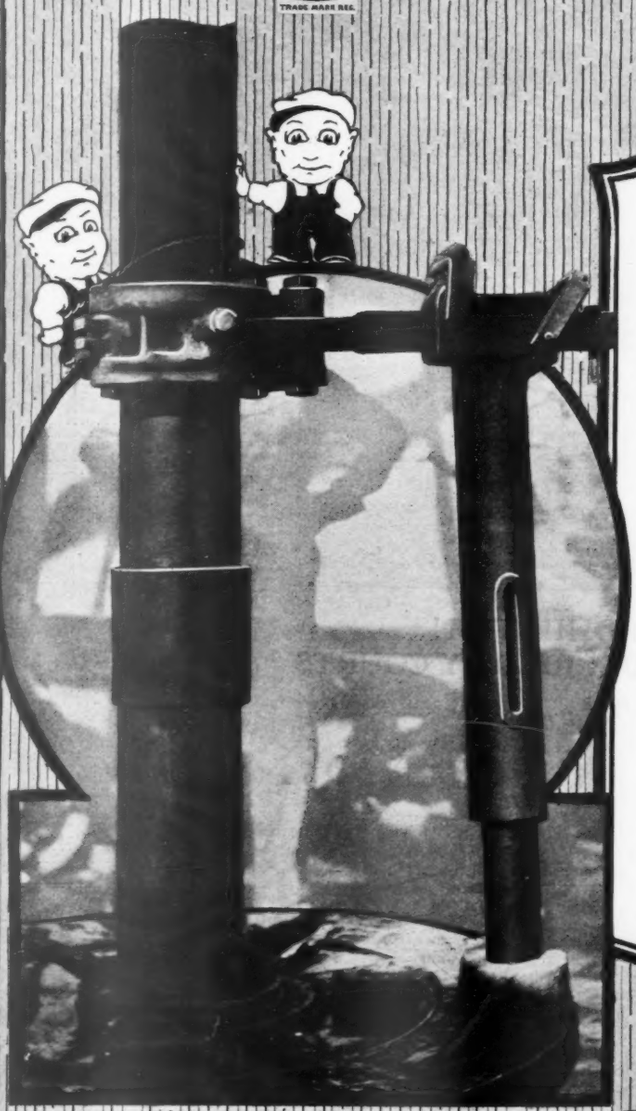
(DUNN TOOLAGRAM)

Users Swear By (not at) DUNN SAFETY CASING TONGS

OIL WELL DUNN TOOLS TRADE MARK REG.



(Dunn Safety Casing Tongs are now furnished with special short handles for use on make-and-break rotary posts of other manufacturers, for making up casing.)

The illustration shows a Dunn Safety Casing Tong equipped with a short handle used in connection with an "Oilwell" Make-Up Post, for setting casing. Referring to this tong one of our field men quotes Mr. John Hatcher, Superintendent of the Yount-Lee Oil Company of Texas, as follows:

"We recently set 5,283 feet of 7⅝ inch-26¾ lb. casing in our Fee No. 25, in the Spindletop Field, in 9 hours and 40 minutes. On Fee No. 26 we set 2,300 feet of 10-inch 32 lb. casing in 4 hours and 40 minutes, and 5,320 ft. of 7⅝" in 8 hours and 30 minutes. Pipe was picked up in singles off the rack and the men sure swear by these tongs. We have set approximately 15 miles of casing with this tong with no repairs other than half a dozen new dies."

These are the kind of records all crews are striving for. Give them the tools to do it with and they will make the records.

DUNN
MANUFACTURING COMPANY
OXNARD, CALIFORNIA

Mid-Continent Branch Warehouse
215 East Archer St. Tulsa, Oklahoma

Export Sales Office
150 Broadway, New York City

TRY AT OUR RISK

We'll send you any type or size of Dunn Safety Casing Tong with short handle for this class of service, transportation charges prepaid, for trial. If it isn't the fastest, safest and best tong you ever used for setting casing, send it back to us at our expense. No obligations on your part.

DUNN SAFETY *means* DONE SAFELY

Seminole Opened Up, Below Proration

Four Older Divisions Believed To Have Passed Their Peak. Little River's New Wells Causing Speculation

J. L. Dwyer
Staff Correspondent, Oklahoma Fields

The Greater Seminole area has been thrown wide open for four successive days and the combined output of the four pools subjected to the order of proration has been below the prescribed figure of 450,000 bbls. The decline of the various pools has been slight with the exception of the Earlsboro Field which has registered a drop of almost 50,000 bbls. during the past two weeks. The drop of some of the Earlsboro leases has been spectacular. The lease of J. E. Crosbie and others in Section 9-9-5 has been the most startling in point of decline for on August 12 it was producing 15,000 bbls., while on Friday of last week it produced 300 bbls. The appearance of water in the north and northwest end of Earlsboro has added to the opinion that little more may be expected from this sector of the pool and with the northeast side of the pool the most interesting territory, there remains a gap or approximately 40 or 60 days before any appreciable number of completions will be recorded in the latter section.

The four pools of Greater Seminole, Seminole, Searight, Bowlegs and Earlsboro are definitely believed to have passed their peak, and have ceased to cause any unusual anxiety. The part of the field which is now the topic of greatest interest is the Little River district where two new wells flowing 150 bbls. an hour from the top of the sand have spread production one-quarter of a mile to the west, and caused grave apprehensions as to whether or not the operating companies will abide by the agreement signed some time ago limiting the output of these wells to a figure of 100 bbls. daily each. According to the original plan, the discovery well was to have been permitted to flow wide open until another well was completed, at which time the discovery well and wells subsequently drilled were to be curtailed to a figure of 100 bbls. daily.

New Wells at Little River

There are now three wells completed at Little River, and while the two new wells have been producing for two days, no curtailment of runs has been in evidence. A meeting was called on Monday of this week to try and work out some details of the proration plan.

The two new wells in Little River are the Blackwell Oil & Gas Co.'s No. 1 Nitey, SE cor. SE, Section 35-8-6, which is a diagonal offset to the discovery well, and which is flowing 1,800 bbls. daily from sand 4,229-31 feet. This well has only penetrated the sand 2 feet. The other new well is the Indian Territory Illuminating Oil Co.'s No. 1 Dungan, SE cor. SW SE, Section 35-8-6, a quarter-mile west and one location north of the discovery well. It found the sand at 4,220-21 feet, and is flowing 140 bbls. hourly.

The Blackwell Oil & Gas Co.'s well seems to be slightly low according to the sand record of the discovery well which topped the Wilcox at 4,016 feet and had a total depth variously reported, but believed to be 4,028 feet. There is a difference of 213 feet with comparatively little difference in elevation. In another field than Seminole this would have meant much, but considering the irregularities which have been witnessed in this territory, a new high or low means little to the performance of the entire area. If a number of wells were to be found in the same low position it would have a great significance upon the future of the field, but a single well has little meaning.

The output of the prorated Greater Seminole Field ranged around 445,000 bbls. during the past week with an additional 8,000 bbls. for the Little River area.

The movement of oil out of the field during the past week has been averaging as follows:

Pipe line, 324,000 bbls.
Tank car, 59,000 bbls.
To steel storage, 54,000 bbls.

Dry Hole in Osage

In Osage County, the Phillips Petroleum Co. has a dry hole on the southeast edge of the Burbank Field. It is No. 1, NE cor. SE, Section 29-26-6, which is dry and abandoned at 2,997 feet.

In Muskogee County, the shallow activity which has been in progress slowly shows several new locations, and one dry hole, Indian Capital Oil Co.'s No. 1, SE cor. SW, Section 10-14-18, which is dry and abandoned at a depth of 2,014 feet.

Okfuskee Purchase

In the gas field on the southern edge of Okfuskee County, the Oklahoma Natural Gas. Co. is reported to have purchased the gas property of the Kingwood Oil Co. of Okmulgee, Okla., for a price not announced but reported at $125,000 in cash and a similar sum in gas. The property comprises 80 acres with three gas wells on it. One of the wells was completed three years ago and was one of the largest gas wells ever completed in the State, having had an initial output of 160,000,000 feet daily. The gas is found in a member of the Dutcher sands, and there had been hopes entertained for the finding of production in the deeper strata, but wells deepened to the Wilcox in this territory have found it barren of oil.

In this same field, Wigton & Long and others have a good gas well in a new part of the region, No. 1 Johnson, CNL NE of the region, No. 1 Johnson, CNL NE 40,0000,000 feet from sand 3,220-25 feet.

Seminole Production

Production of the greater Seminole area on August 26 was as follows:

Bowlegs

Company, Farm	Wells	Prod.
Amerada—Rasco	8	7,020
Atlantic—Baker	4	2,620
Fleet	4	2,330
Grayson	4	2,310
Jones, C.	1	2,663
Atlantic & Denver—Jones, A.	4	261
Barnsdall—McNac	1	60
Murrow	3	2,416
Carter—Bowlegs	3	2,165
Harjoche	6	3,075
Hilly	1	2,000
McGelsey	1	....
Walker	2	1,280
Wise	9	10,005
Empire—Lacy	6	2,209
Wise	1	2,685
Gypsy—Bowlegs	1	480
Brown	1	92
Cumsey	1	487
Grayson	1	2,227
Walker	7	3,800
Wise	2	....
Indep-Marland—Coker	1	620
Ind.-Territory—Barnett	2	1,711
Billington	2	1,301
Bowlegs	7	4,985
Davis	3	2,249
Fay	1	1,732
Goforth	9	4,246
Livingston	12	12,762
Lizzie	1	635
Walker	8	4,667
Wilmont	4	3,454
Work	1	952
Youngblood	4	1,157
McColloch—Bowlegs	2	550
Mid-Continent—Baker	4	4,187
Bowlegs	1	1,190
Hutke	1	....
Minnehoma—Bowlegs	4	3,584
Prairie—Gahagan	3	1,645
Harber	6	5,745
N. Templeton	1	3,360
Whitney	4	1,390
Pure—Reed	14	13,632
Strothers "D"	1	798
Strothers "E"	1	15
Strothers "F"	1	460
Roxana & Houston—Taylor	5	3,588
Shaffer—Lacy	3	1,500
Sinclair—Adam	1	....
Bowlegs	1	....
Cumsey	1	....
Ellen	3	1,360
Harjo	3	3,075
Jones	4	5,340
Taylor	3	1,803
Walker	4	3,050
Texas—Reed	7	7,855
Tidal—Harjoche	4	2,735
Twin State—Jones	1	2,430
Total	206	162,953

Little River

Indian Ter. Ill Co.—House	1	7,866

Earlsboro

Amerada—Anderson	4	3,740
Cowden	4	5,280
Barnsdall—Brown	1	3,745
Cudjo, C.	1	25
Davis, D.	2	2,037
Davis, J.	2	223
Davis, M.	3	2,288
Gibson	6	12,934
Hearn	1	22
Hooley	1	47
Ingram	1	....
Pack	2	797
Peter	3	601
Sango	1	148
Sebolka	1	3,000
Sullivan, H.	2	1,863
Sullivan, N.	2	67
Smith	1	20
Wasutke	2	2,401
Carter—Payne	1	1,000
Sango	1	180
Continental—Spencer	1	6,140
Crosbie—Bryant	2	300
Empire—Edmundson	1	3,612
Gypsy—Bruner	1	3,785
Carter	3	352
Earl	1	2
McFarland	2	115
Noble	1	2,122
Peter	3	1,265
State	4	1,202
Strain	1	....
Independent—Bruner	1	40
Gaines	1	2,995
Knapp	3	2,102
O'Dell	4	10,660
Sullivan	2	100
Inter-Ocean—Payne	1	376
Magnolia—Bryant	4	3,475
Edmundson	2	3,707
Holmsley	5	8,459
Ingram	1	41
Lena	2	169
Seay	4	1,411
Simpson	2	112
Sparks	4	5,734
Mid-Continent—McCumber	4	5,900
Mid-Kansas—Anderson	1	30
Phillips—Dunnaway	1	37
Graham	6	2,332
Philmack—Dobbs	2	....
Prairie—Baker	1	50
Davis	3	3,775
Graham, C.	1	4,380
Graham, O.	2	1,355
Stidham	5	5,540
Roxana—Hearn	1	279
Spencer	2	4,984
Sinclair—Foreman	1	....
Skelly—Spencer	1	8,738
Texas—Brown	2	35
Rodgers	1	8,180
Wilmont	1	247
Tidal—Watkins	4	4,995
Twin State—Barker	1	3,260
Hearn	1	3,152
Total	142	154,999

Seminole

Carter—B. Carter	2	240
J. Carter	3	67
F. Carter	3	235
Creamer	2	....
R. Cudjo	4	830
W. Cudjo	2	120
Gilliland	2	315
Grisso, M.	1	35
Grisso, W.	1	600
Knapp	3	1,225
Killing, M.	12	11,635
Killing, G.	4	1,695
Lukes	7	1,550
Ponder	1	70
Simpson	2	225
Strother	3	1,050
Vierson	4	440
Amerada—Fixico	4	1,537
Killing	4	455
Rentie	3	1,193
Atlantic—Cudjo, N.	4	510
Barnsdall—Carter	9	4,311
Henry	2	544
Jones	4	1,350
Empire—Gross	2	1,517
Wilson	3	400
Gypsy—Butler		792
Carter	8	1,395
Cudjo	4	235
Fixico	5	204
Harjo	3	1,250
Wolf	7	515
Independent—F. Fixico	4	265
Harjo	2	648
Indep. & Garland—T. Fixico	8	545
Indep. & Inter-Ocean—Jones	4	495
Indian Territory—Bowlegs	11	3,405
Gooden	4	296
Harjo	4	586
James	4	1,005
Reed	3	38
Kingwood—Johnson	2	1,465
Magnolia—Cheparney	1	....
Franks	4	650
Mid-Continent—Rentie	9	1,635
Tayeche	7	380
Mid-Kansas—Jackson	1	62
Pressley	1	21
Wilkins	1	602
Phillips—Strothers	3	....
Philmack—Butler	3	3,370
Prairie—Gross	5	128
Mason	1	867
Spencer	1	10
Strother	8	935
Pure—Strother, A.	17	3,177
Strother, B.	5	4,758
Strother, C.	1	....

OXFORD DRILLING PROHIBITION LIKELY TO BE DECIDED BY COURTS

By J. L. Dwyer
Staff Correspondent, Kansas Fields

The battle of the townsite of Oxford in Sumner County furnishes the best news of the week from the Kansas fields. In this townsite pool there are about 15 active drilling operations and the city fathers have decided against drilling on the townsite. There have been numerous legal skirmishes in the case to date and one drilling contractor was arrested when he refused to obey a legal order instructing him to shut down. It is probable that other arrests will follow and that the case will be tried in the Kansas courts to determine whether or not the ordinance forbidding drilling on the townsite is valid.

There is a noticeable letup to the operations in the fields of the State, and new wildcat operations are conspicuous by their absence.

Butler County

Empire Gas & Fuel Co. is building the rig for No. 1 Hutchinson "C," SE cor. NW Section 34-27-5. Patton and others made location for No. 1 Stern, SW cor. Section 27-27-6. Empire Gas & Fuel Co.'s No. 1 Lennerson, NE cor. SW Section 34-27-5, had sand at 2,707-25 feet, but plugged back to 2,723 feet where it made 35 bbls. after a 40-quart shot. Shawver & Sutter's No. 1 Mathews, NE cor. NW NW Section 26-28-6, is dry and abandoned at 2,818 feet.

Chase County

Phillips Petroleum Co. made location for No. 1 Cornish, C NW SE Section 36-18-6. Barnsdall Oil Co.'s No. 2 Stotler, SE cor. NE Section 25-21-9, is a dry hole at 2,364 feet.

Cowley County

Trees Oil Co.'s No. 1 Freilinger, SE cor. NE NE Section 36-31-3, is dry and abandoned at 3,389 feet.

Doniphan County

Valley Petroleum Co.'s No. 1 Blank, SE cor. NW Section 2-1-19, is dry at 2,315 feet.

Elk County

Elmwood Oil Co. and others' No. 1 Osborn, NW cor. SE NE Section 15-30-10, has been abandoned at 2,055 feet.

Greenwood County

Polhamus and others' No. 3 Townlot, SW cor. SE SW Section 35-25-10, is rigging up. Small & Bement Oil Co. made location for No. 1 Snyder, NE cor. SE NW Section 7-25-11. Rogers and others are building the rig for No. 3 Townlot, NW cor. NE NW Section 2-26-10.

Empire Gas & Fuel Co.'s No. 1 Ott, NE cor. NW Section 25-22-12, made 360 bbls. from sand at 1,644-1,716 feet. Buck and others' No. 1 Mosby, NE cor. SW SW Section 34-23-8, is a dry hole at 2,651 feet. Edwards and others' No. 1 Edwards, NW cor. Section 23-24-10, is dry and abandoned at 3,050 feet. Plains Petroleum Co.'s No. 3 Teichgraber, NW cor. SW NE Section 11-25-8, was com-

(Continued on Page 75)

The views of Senator Wm. E. Borah relating to Oil Conservation, as expressed in his speech at Denver, June 28, 1927:

"If the waste and exhaustion of our natural wealth simply interrupted the gathering of wealth by the few immediately engaged, that would be unfortunate enough, but it embarrasses and impoverishes a whole people and puts the people and the government alike in jeopardy. The problem is in every sense of national import and of the utmost public concern."

Universal Oil Products Company
Owner of the Dubbs Process
310 South Michigan Ave
Chicago, Illinois

Company, Farm	Wells	Prod.
Roxana—Harber	2	366
Lashley	2	99
Sinclair—Carter	2	91
Cudjo, A.	6	1,330
Cudjo, B.	3	530
Dicey	2	760
Fixico	4	610
Slick—Cudjo	3	896
Franks	8	1,924
Giblet, Sam	3	3,203
Superior—Cudjo	4	976
Texas—Mayhue	1	165
Strothers	2	....
Tidal—Carter	5	1,435
Fixico	8	195
Harjo, D.	1	1,040
Harjo, T.	6	280
Mahardy	2	450
Tayeche	2	45
Turman—Cudjo	4	1,227
Grisso	1	289
Jones	4	1,276
Total	316	79,070
Searight		
Carter—Davis	5	5,365
Frazier	5	5,595
Kiker	1	35
Scott	1	40
Gypsy—Cudjo	2	1,125
Mid-Continent—Grayson	6	1,370
Soloche	2	1,410
Prairie—Cannon	1	17
Carter	1	10
Houck	1	7
Kincaid	8	1,440
Wiener	1	15
Pure—Aldridge	2	5,637
Roxana—Strother	2	2,640
Sinclair—Polly	2	2,000
Twin State—Varnum	1	388
Wilcox—Chupco	4	3,803
Total	45	30,897
Total—Bowlegs	206	162,953
Total Little River	1	7,866
Total Earlsboro	142	154,999
Total Seminole	316	79,070
Total Searight	45	30,897
Grand Total	710	435,785

Beckham County

Magnolia Petroleum Corp. is moving the tools in for No. 2 Beagle, NW cor., Section 28-9-23w. Rubana Oil Co. made location for No. 1 Ensey, C NE SW, Section 21-9-23w. Fred Coogan made location for No. 1 Rosenbaum, NE cor. SE SE, Section 20-9-23w.

Caddo County

Rome, Moran and Jackson have the rig up for No. 1 Parks, SE cor. NE NW, Section 5-5-9w.

Carter County

Magnolia Petroleum Co. has a rotary rig up for No. 1 Tivis, NW cor., Section 20-1s-3w. Wirt Franklin and the Prairie's No. 13 Pruitt, NE cor. NW NE NW, Section 3-2s-3w, was completed for 57 bbls. in a series of sands 2-155-2,912 feet, total depth 3,200 feet.

Creek County

Evans Brothers have the rig up for No. 1-A Cares, NW cor. SE, Section 31-19-9. J. H. Wright has the rig on the ground for No. 23 Tahkaney, SW cor. NW NW, Section 24-17-10. Henry Oil Co. has built the rig for No. 1 Abbott, NE cor. SW SE, Section 4-17-11. Thompson & Black's No. 2 Broadnox, SE cor. NW, Section 16-17-11 is spudding. W. H. Clark and others built the rig for No. 1 Kimble & Reading, SE cor. NE SW, Section 8-14-10.

T. E. Mann and others' No. 1 Harjo, SE cor. SW NW, Section 6-18-10 found water in the Wilcox sand 2,961-94 feet and was abandoned. L. & D. Oil Co.'s No. 1 Kellyville townsite, Lot 16, Block 9, SE cor. NE NE, Section 23-17-10 was completed for 50 bbls. in the Red Fork sand 1,915-62 feet.

Garvin County

Mid-Continent Petroleum Co. has a rotary rig up for No. 1 Derdeyn, NE cor. NW SW, Section 17-1-3w. Magnolia Peiroleum Corp.'s No. 1 L. Tussey, NE cor. SW, Section 31-1-3w is swabbing 15 bbls. from sand 3,435-37 feet.

Grady County

Watchorn Oil & Gas Co.'s No. 1 Roger, SE cor. SW NE SW, Section 36-5-8w is drilling at 700 feet. Magnolia Petroleum Corp. made location for No. 3 Williams, SE cor. NW SW, Section 11-4-8w. Watchorn Oil & Gas Co. made location for No. 1 Woods, SW cor., Section 12-4-8w. Garvin Drilling Co. has built the rig for No. 1 Woods, NE cor. SW NE, Section 17-3-5w, Carter-Knox Pool. Joe Anderson's No. 1 Wilde, NE cor. SE SE, Section 28-3-5w is rigging up to deepen from 1,811 feet.

Magnolia Petroleum Co.'s No. 1 Thomas, SW cor. NW SE, Section 24-5-8w is dry and abandoned at 3,325 feet. No. 2 Heathley, SW cor. NW NE, Section 2-4-8w was completed for 3,500,000 feet of gas in sand 1,145-1,484 feet total depth. Carter Oil Co.'s No. 4 B. A. Horton, SE cor., Section 8-3-5w Carter-Knox area has been abandoned at 2,838 feet. No. 3 Ray Horton, NW cor. SE NW, Section 8-3-5w had sand 2,192-2,204 feet, drilled on to 2,209 feet and is making 20 bbls. No. 1 Hogue, NE cor. SW NE, Section 21-3-5w Carter-Knox Pool drilled to 2,115 feet and plugged back to sand 1,724-44 feet where it is making 60 bbls. No. 3 Cassie Kerans, NE cor. SE NE, Section 21-3-5w had sand 1,695-1,710 feet and is producing 130 bbls. Magnolia Petroleum Corp.'s No. 3 Polson, NW cor. SW SW, Section 27-3-5w came in for 29 bbls. in sand 2,261-70 feet.

Haskell County

San Bois Gas Co. has the rig on the ground for No. 1 James, NE cor. Section 24-8-20.

Kay County

Harris & Hahn's No. 1-A Dickson, SE cor. NE, Section 17-29-1 is drilling at 765 feet with a show of gas. George Dickey is digging the cellar for No. 1 Warren, NE cor., Section 30-28-1w. Larutan G. & F. Co.'s No. 1 Woods, NE cor. NW NW, Section 30-27-1w is drilling at 250 feet. National Union Oil Co.'s No. 3 Hennessy, NE cor. NW NE, Section 30-29-1 has been abandoned at 2,010 feet. Carter Oil Co. & Failing's No. 2 Chambers, SW cor. NE SE, Section 9-25-2w, a location, was abandoned. No. 1 Chambers, SW cor. NE SE, Section 9-25-2w is dry and abandoned at 4,676 feet. Marland Oil Co.'s No. 2 Chambers, SE cor. NW SE, Section 9-25-2w has been abandoned at 4,446 feet in the Wilcox sand.

McIntosh County

Eagle Picher Lead Co.'s No. 1 Malvern, CWL SW SW, Section 16-11-14 is drilling at 900 feet. No. 1 T. Malvern, CEL SE SE, Section 17-11-14 is drilling at 1,300 feet.

Muskogee County

Wilson & Severt's No. 6 Barnett, C SE SE, Section 34-16-15 is rigging up. Jack Summers' No. 1 M. Beams, SE cor. NE NW, Section 28-15-16 has a bad hole at 100 feet. C. M. Bradley's No. 7 Crittenden, SE cor. NE NW SW, Section 5-14-19 is rigging up. C. B. Crittenden's No. 1 Crittenden, NE cor. NW NE, Section 6-14-19 is drilling at 50 feet. Sioux Oil Co. has the machine on the ground for No. 3 Kelly, CNL NE NW, Section 24-13-18.

Mitchell Oil Co.'s No. 1 Grayson, NE cor. SE, Section 23-15-15 is a dry hole at 2,588 feet. J. L. Selby's No. 7 Brown, SE cor. SW NW, Section 35-15-15 has been abandoned at 2,155 feet. Indian Capital Oil Co.'s No. 1 Barnett, SE cor. SW, Section 10-14-18 is dry and abandoned at 2,104 feet. C. M. Bradley's No. 8 Goodrich, NE cor. SE NW SW, Section 5-14-19 is a dry hole at 1,520 feet.

Okfuskee County

Burke Greis Oil Co.'s No. 2 Deer, SW cor. NE SW, Section 36-11-9 is rigging up. Riverland Oil Co. has the rig up for No. 2 Holmes, SE cor. NW NW, Section 30-11-11. F. A. Havel's No. 1-A Likowsky, NE cor. SE SW, Section 23-11-11 was drilled deeper to sand 2,039-55 feet and completed for 50 bbls.

Okmulgee County

Denton & Marshall have the rig on the ground for No. 1-A McKinney, NE cor. NW, Section 16-15-14. J. E. Wallace's No. 2 B. Colbert, C NE NW, Section 14-14-14 is drilling at 1,400 feet. Midland Oil Co. has a machine on the ground for No. 2 Burgess, NE cor. SE NE, Section 19-12-13. Tiger Mountain Oil Co. moved a machine out for No. 1 Simer, NE cor. Section 19-12-13. A. Moffitt and others' No. 1 Grayson, NE cor. SE, Section 5-11-13 is drilling at 500 feet. T. A. Johnson and others' No. 1 Vierson, CEL NW NE, Section 34-14-12 is spudding. Eagle Picher Lead Co. has the rig on the ground for No. 1 Bird, NW cor. NE, Section 5-12-12. No. 4 Holmes, CWL NE SW, Section 34-12-12 is drilling at 500 feet.

Harmon & Devonian Oil Co.'s No. 1 Wisner, NE cor. NW SE, Section 5-15-13 was completed for a dry hole at 2,603 feet. J. J. Schock and others' No. 1 E. Deer, SW cor. NE SW, Section 9-15-13 is making 45 bbls. from sand 2,577-83 feet. J. Aggas and others' No. 1-A Foster, CSL NW SW, Section 6-13-15 is a 25-bbl. well in sand 2,025-35 feet. W. B. Pine's No. 2 Burgess, SW cor. NE SW, Section 17-12-13 drilled to 3,410 feet in the Wilcox where water was found, and was then completed for 1,500,000 feet of gas from sand 1,875-86 feet. Lakeside Oil & Gas Co.'s No. 2 Gill, C NW NW, Section 35-13-11 is a dry hole at 3,400 feet. J. J. Schock and others' No. 1 Rees, NE cor. Section 34-12-12 is good for 8,000,000 feet of gas from the Deaner sand 2,407-36 feet.

Osage County

Winona Oil Co.'s No. 1, NW cor., Section 17-29-11 is drilling at 200 feet. Gypsy Oil Co. has the rig up for No. 7, NE cor. NW SE, Section 28-27-6, Burbank Pool. Osage Gas Producing Co.'s No. 380 CSL NE SE, Section 6-27-11 is drilling at 860 feet. George Parker has the rig up and the tools in for No. 2, NW cor. NE NW, Section 11-26-6 east of the Burbank Pool. Rig has been built and the tools moved in for No. 3, NW cor., Section 11-26-6. Indian Territory Illuminating Oil Co. has a machine and the tools for No. 373, NW cor. NE NW, Section 3-26-11. Location has been made for No. 375, NE cor. SE SW NW, Section 10-25-10. No. 374, NE cor. SW NW, Section 1-25-11 is drilling at 300 feet.

Osage Gas Producing Co.'s No. 374, NE cor. SE NE, Section 6-27-11 was completed for 2,500,000 feet of gas in the Mississippi lime 1,850-55 feet. Tidal Osage Oil Co.'s No. 1, SE cor. SW NE, Section 1-23-8 drilled to the Wilcox sand 2,595 feet and plugged back to the Bartlesville sand at 2,130 feet and made a 45-bbl. pumper. Oklahoma Natural Gas Corp.'s No. 772, NE cor. SE SE, Section 33-22-11 is making 1,500,000 feet of gas from the Bartlesville sand 1,580-91 feet. W. J. Knupp's No. 1-A, NE cor. NW, Section 28-22-12 is a dry hole at 1,978 feet. Sand Springs Home's No. 103, SE cor. NE, Section 2-20-10 was completed for 60 bbls. in the Tucker sand 2,131-50 feet.

Pawnee County

Dixie Oil Co. has built the rig for No. 1 Barber, NW cor. SW SE, Section 8-21-6.

Stephens County

Magnolia Petroleum Corp.'s No. 4 Johnson, SW cor. NE NE, Section 24-1s-9w is being deepened from 1,816 feet, 5-inch casing now being pulled. No. 2 Tarcy, NW cor. SW, Section 29-1s-9w is a rig up. Medlin and others' No. 5 Simpson, NE cor. NW SE, Section 34-

(Continued on Page 81)

SEMINOLE STEEL STORAGE AUGUST 24, 1927

Company and Location—	No.	Size	Stock	Room	Remarks
Amerada, 7-9-6	21	55s	833,457	300,543	5 locations for 55s 3 grades for 55s
Amerada, 3-8-6	5	55s	194,370	75,630	
Barnsdall, 18-9-6	10	80s	659,019	125,981	Two 80s building 2 grades for 80s 3 locations for 80s
Barnsdall, 24-9-6	2	55s			
	2	80s	193,660	71,340	
Barnsdall, 34-9-6	1	55	14,450	39,550	
Barnsdall, 15-9-5	1	55	54,377	.....	
Carter Oil, 3-9-6	3	55s	162,591	.....	
Carter Oil, 34-9-6	19	55s	950,420	75,580	
Carter Oil, 35-9-6	5	55s	263,525	6,475	
Continental, 2-9-6					One 55 building One 80 building
Cosden Oil, 34-10-6	1	55	53,917	83	
Cosden Oil, 14-9-6	3	55s	90,090	71,910	
Crosbie, 9-9-5	3	55s			
Crosbie, 8-9-5	2	55s	217,180	52,820	One 55 building
Empire, 18-8-7	4	80s			2 locations for 55s
Empire, 7-8-7	2	80s	303,660	167,340	
Empire, 14-8-6	2	80s	152,380	4,620	
Gypsy Oil, 10-9-5	6	55s	320,837	3,163	
Independent, 25-9-6	2	55s	32,850	75,150	
Independent, 8-9-5	2	55s	85,526	22,474	One 55 building
Independent, 16-9-5	5	55s	33,458	236,542	
I. T. I. O., 3-8-6	4	80s			
	1	55	.....	368,000	
I. T. I. O. (Davis), 13-8-6	2	55s			
I. T. I. O. (Fay), 13-8-6	5	80s	172,000	328,500	
I. T. I. O. (Livingston), 15-8-6	4	55s			
I. T. I. O. (Goforth), 15-8-6	2	80s	106,434	266,566	
I. T. I. O. (W. Bowlegs), 22-8-6	11	80s	630,079	233,421	
I. T. I. O. (Lawyer), 26-8-6	5	80s	388,593	3,907	
I. T. I. O. (Mills), 31-9-7	14	80s	869,441	229,559	
I. T. I. O. (Hollis), 29-9-7	6	80s	474,327	.....	Four 80s building 6 grades for 80s
I. T. I. O. (James), 24-9-6	4	55s			
	3	80s	376,386	75,114	
I. T. I. O. (Bowlegs), 26-9-6	2	55s	75,656	32,344	
Magnolia, 27-8-5					
Mognalia, 22-8-5	38	55s	1,429,075	622,925	Five 55s building
McCullough, 22-8-6	1	80	.....	78,500	
Phillip , 9-9-5	1	55	52,500	1,500	
Phillips, 3-9-4	2	80s	43,000	114,000	
Phillips, 27-9-6	1	55	.....	54,000	
Pure Oil, 26-9-6	2	55s	96,495	11,505	
Pure Oil, 28 9-6	25	55s	694,341	655,659	
Prairie O. & G., 22-9-5	9	55s	430,459	55,541	Two 55s building 3 grades for 55s
Prairie O. & G., 27-9-6	4	55s	215,652	348	
Prairie O. & G., 31-9-7					4 grades for 80s 12 locations for 80s
Prairie O. & G., 5-8-7					3 grades for 80s 6 locations for 80s
Prairie O. & G., 33-10-6	5	55s	430,500	1,500	
Loxana, 22-9-6	1	80	35,582	42,918	
Shaffer, 36-9-6	2	80s	.....	157,000	
T. B. Slick, 6-8-7	2	55s			
T. B. Slick, 6-8-7	16	80s	766,896	597,104	
Superior, 32-9-6	2	55s	105,182	2,818	
Twin States, 33-10-6	2	55s	18,700	89,300	
Texas, 3-8-6	1	55	.....	54,000	
Texas, 14-9-6	1	55	.....	54,000	
Texas, 25-9-6	1	55	.....	54,000	
Tidal Ref., 25-9-6	3	80s	118,871	116,629	
Tidal Ref., 9-9-5	2	55s	42,000	66,000	One 55 building 2 grades for 80s
Tidal Ref., 15-9-5	1	80	.....	78,500	
Turman, 3-8-6	1	80	75,500	1,000	
Turman, 34-9-6	5	55s	46,742	223,258	
Total			12,312,178	5,998,617	
Total stock last week			12,146,918		
Increase in stock			165,260		

Recapitulation

Company—	Stock
Amerada	1,027,827
Barnsdall	921,506
Carter Oil	1,376,536
Cosden Oil	144,007
Crosbie	217,180
Empire	456,040
Gypsy Oil	320,837
Independent	151,834
I. T. I. O.	3,092,916
Magnolia	1,429,075
Phillips	95,500
Pure Oil	790,836
Prairie O. & G.	1,076,611
Roxana	35,582
T. B. Slick	766,896
Superior	105,182
Tidal Ref.	160,871
Turman	124,242
Twin States	18,700
Total	12,312,178

Present Storage

Capacity:	198	55s	10,692,000
	97	80s	7,614,500
Total capacity			18,306,500
Stock		12,312,178	
Less excess		4,295	12,307,883
Present net room			5,998,617

Future Storage

	55s	80s
Building	10	7
Grades	6	17
Locations	7	21
Total	23	45
Capacity	1,242,000	3,532,500
Total estimated future capacity,		4,774,500

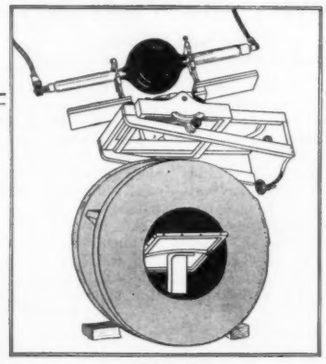


Plate 3
X-Raying a Steel Tee with 250,000 volts.
(Walworth Sigma Steel Research)

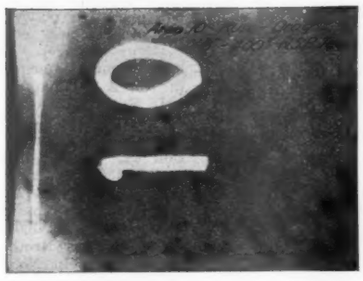


Plate 1
X-Ray Negative Ordinary Steel Fitting

1. DIAGNOSIS
2. REMEDY
3. PREVENTION

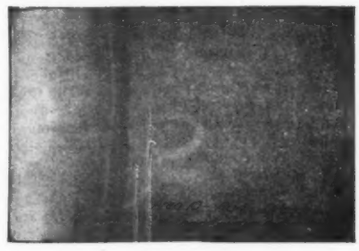


Plate 2
Walworth Sigma Steel Fitting

The result is Walworth SIGMA STEEL

Post mortems are unnecessary when the patient survives. Likewise X-Ray post mortems of cast steel valves and fittings are only wasted time and expense when prevention has already eliminated the defects which the X-Ray is expected to disclose.

Years ago Walworth recognized the dangers involved in the use of ordinary cast steel for high-temperature, high-pressure service. Ordinary cast steel frequently contained interior defects—as Walworth engineers showed by the use of the X-Ray. (See Plate 1).

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Our experiments proved conclusively that few defects could be traced to the metal in the ladle or the furnace. They were due to man-made mistakes in the molding or on the casting floor. When these errors were eliminated by improved foundry methods, the defects disappeared, and sound valve and fittings castings resulted.

A new technique was developed and became the standard practice in our steel foundries. Subsequent X-Ray tests proved, definitely and conclusively that the new Walworth Sigma Steel was entirely free from the dangerous defects found in ordinary steel. (See Plate 2) "Sigma," in truth, *"has swept suspicion from steel."*

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Northeastern Louisiana Gets Play

Most Likely Center of Drilling Operations in Near Future. Important Acreage Deals

By Nell Williams
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Aug. 29.—Attention of North Louisiana operators was focused the past week on the active leasing campaign going on in Catahoula and Franklin Parishes, two wildcat districts brought into the limelight recently by interesting gas blowouts. In southern Arkansas there were no developments of importance, although wildcat tests in the extreme northeastern part of Union County are being watched closely.

Two more Trinity horizon producers were added in the Pine Island field of Caddo Parish, but completions in the Arkansas-North Louisiana division for the most part were only routine, and even new wells in the Pine Island district are losing their "kick" to operators here due to the freakish fluctuation in production and the heavy flow of salt water.

Acreage Buying

The active acreage buying in Catahoula and Franklin Parishes apparently is the most important development in the entire division and is bringing not only these parishes but all northeastern Louisiana to the front as the most likely center of drilling operations in the near future. The Rayville gas district, to the north in Richland Parish, opened and assuming major proportions, important gas blowouts occurring almost simultaneously in two rank wildcats, one in each of the former parishes, was sufficient to turn the attention of operators more sharply to eastern Louisiana.

The blowouts, it will be remembered, occurred in Lochnager Oil & Gas Co.'s No. 1 Beasley, Section 26-9-6e, Catahoula Parish, and in Cowell and associates' (Pittsburgh Exploration Co.) No. 2 Moore, Section 12-11-6e, Franklin Parish. The former blew at the rate of more than 30,000,000 feet of gas daily for 40 minutes from a depth of 3,093 feet when it bridged over and filled with salt water. This test the past week was bailed after 600 feet of 2½-inch liner had been set, and tested salt water with only a show of gas. It will be abandoned but a new test will be drilled. The Franklin wildcat blew out while drilling at 1,385 feet, although the gas is reported from a sand at 701-34 feet. It also bridged and went dead after producing at the rate of better than 10,000,000 feet of gas daily for several days. The latter also flowed more than 10,000 bbls. of salt water daily.

The Gulf Refining Co., Ohio Oil Co., the Standard Oil Co. and the Benedum-Trees interests are among those in important acreage deals, while other companies are active in seeking protection acreage. The Ohio Oil Co. is reported in a deal for a lease to all land owned by the Tensas Delta Land Co. in Townships 10 and 11 north and Ranges 5 and 6 east. This land, between the Lochnager well and that of the Pittsburgh Exploration Co., comprises more than 30,000 acres, on which 10 tests will be drilled to around 2,000 feet.

Tests Planned

If this deal goes through, the Ohio Oil Co. will make a thorough test of all sands encountered by the Pittsburgh Exploration Co.'s No. 1 Moore, which was abandoned early this year. The latter had an oil sand at a depth of 2,120 feet which never was tested.

The Standard Oil Co. is blocking a 15,000-acre tract in Section 21-9-7e. This is understood to be a joint proposition with S. D. Hunter, and arrangements are being made to drill a test. Benedum & Trees are working up a block about 15 to 20 miles south of the Lochnager well. The Gulf is active both in Catahoula and Franklin Parishes.

This leasing is in line with the interest which has been manifest in Richland Parish up to the north where several important transactions have been completed, including deals by the Moody-Seagraves interests, Natural Gas & Fuel Corp. and the Southern Carbon Co. Premium prices are being paid for gas rights in Richland Parish amounting to as high as $50 an acre.

New Trinity Wells

The new Trinity wells in the Pine Island Field the past week were Benedum-Trees Oil Co.'s No. 1 Bashara, Section 23-21-15, and Haynes Brothers' No. 1 Spell, Section 15-21-15. The former flowed 1,150 bbls. of oil, an estimated 15,000,000 feet of gas and lots of salt water in the 24 hours ending Saturday morning. It was completed at a depth of 3,660 feet. It is the furthest south deep wells in the field.

The Haynes Brothers' well is the latest addition to the field, extending the deep production west into Section 15. It is the first well since the gusher completed by these operators early in July to come in without a trace of salt water. However, so far there has hardly been sufficient gas pressure to flow the well, it producing only by heads making 130 bbls. in the first eight hours. This well is at a total depth of 3,703 feet. Casing is believed to be set low enough to cut off the water, the casing being at 3,665 feet.

Eighteen tests were completed or abandoned in the division the past week, only six being in the former class, while 12 were failures. Producers also included a 50-bbl. well in the Irma Pool of Nevada County, Arkansas, and a 100-bbl. well in the Urania Field of LaSalle Parish, Louisiana.

Production Drops

Production in the division, which dropped to new low levels the past week, showed a reduction in the daily average of 3,285 bbls. This continued in line with the steadily lowering production of Arkansas and North Louisiana fields occasioned by the draining of oil pools and the failure of the flow of new districts to offset it. Daily average production by fields the past week was:

NORTH LOUISIANA	
Caddo light	15,960
Caddo heavy	5,125
Homer	4,730
Haynesville	7,200
De Soto-Red River	4,050
Elm Grove	665
Bellevue	1,180
Cotton Valley	5,400
Urania	9,800
Pleasant Hill	735
Total	54,845
ARKANSAS	
El Dorado	5,760
Lisbon	3,280
Smackover light	10,295
Smackover heavy	80,015
Stephens	1,250
Nevada	2,240
Bradley	100
Total	102,940
Total both states	157,785
Total last week	161,070
Decrease	3,285

North Louisiana

Caddo Parish

In the Pine Island Field, Arkansas Natural Gas Co.'s No. 2 Lane, Section 13-21-15, is down 3,630 feet where a short string of 5 3/16-inch casing has been cemented. Benedum-Trees Oil Co.'s No. 1 Bashara, Section 23, has been completed flowing 1,100 bbls. of oil, 15,000,000 feet of gas and lots of salt water from a depth of 3,660 feet. This company's second test on this lease is drilling at 2,241 feet. This company also has a test in Section 14 which is coring at 3,572 feet. Dixie Oil Co.'s No. 9 Caddo Mineral Land Co., Section 23, is making a chalk rock test at 1,520 feet. This company's No. 89 Dillon, Section 14, is drilling lime at 3,052 feet. Drilling also has been started at No. 90. Dixie's No. B-6 Files & Mabry, is drilling at 2,231 feet. No. A-2 Noel, Section 13, is at 3,875 feet where 6¼-inch casing is being underreamed. This company's No. 10 Slattery, Section 27, is in red shale at 4,022 feet. Golden Rod Oil Co. has cemented 8-inch casing at 2,340 feet in No. A-1 Hampton, Section 15.

In Section 15, Gulf Refining Co.'s No. 10 Herndon, is drilling lime at 3,406 feet. This company's No. 14 Tyson, Section 14, has 6⅝-inch casing cemented at 3,652 feet. This test, which is at a total depth of 3,667 feet, will be bailed the latter part of the week. No. 15 Tyson is down 3,625 feet drilling in lime. Haynes Brothers are killing the gas blow-out in No. 2 Murray, Section 14, preparatory to drilling deeper. These operators also have another test, No. 1 Spell, Section 15, on the pay horizon at 3,665 feet where 6⅝-inch casing has been cemented.

Magnolia Petroleum Co.'s No. 26 Raines, Section 22, is drilling lime at 2,657 feet while No. 21 Robertshaw, Section 23, is down 3,292 feet drilling lime rock. Pittsburgh Oil & Development Co.'s No. 1 Herndon, Section 15, is drilling at 3,465 feet. This company's No. 1 Huckaby, this section, has 6⅝-inch casing cemented at 3,619 feet. The Texas Company has cemented 10-inch casing at 2,340 feet in No. 49 Caddo Mineral Land Co., Section 23. No. 47, this lease, has been abandoned temporarily at 3,657 feet. This company also has two more tests starting on this lease, No. 50 being down 202 feet where 15½-inch casing has been set and No. 51 is being rigged up. No. 6 Herndon, Section 14, is drilling lime at 3,328 feet. No. 8 Herndon is in a hard lime at 3,344 feet, while No. 9, this lease, is drilling at 1,010 feet. This company's No. 9 on the Herold lease, Section 14, is drilling hard lime at 2,430 feet. No. 10 is down 985 feet. No. 10 Mabry, Section 15, is drilling at 2,410 feet. No. 19 Raines, Section 15, is down 2,475 feet where 10-inch casing has been cemented. Palmer Corp.'s No. 1 Sellington, Section 17-21-14, has been shut down at 2,780 feet.

Bossier Parish

Humble Oil & Refining Co.'s No. 30 Bliss & Wetherbee, Section 15-19-11, Bellevue deep test, is reaming to the bottom at 3,674 feet to make a test. Palmer Corp.'s No. 4 Bossier, Section 9-16-11, Elm Grove deep test, is drilling hard lime at 5,230 feet. J. S. McCullough has a location for No. 3 Hodges, Section 25-16-12.

Waskom and Greenwood

In the Waskom and Greenwood district, Belchic & Laskey's No. 1 Sharp, Section 15-18-16, is drilling at 400 feet. J. P. Evans and associates have abandoned the location for No. 2 Trosper, Section 35-18-16. Greenwood Producing Co. is putting up a derrick for No. 1 McCutcheon, Section 15-17-16. This company has abandoned its No. 1 Thigpen & Herold, Section 23-18-16. It tested salt water at 910 feet. This company's No. 2 Thigpen & Herold, Section 24, has been abandoned temporarily after testing salt water at 927 feet. B. A. Hardy's No. 1 Bickham, Section 23, tested salt water at 903-08 feet after perforating the casing at that level. Total depth of the hole is 2,575 feet. Bert Keouns and associates have abandoned

(Continued on Page 75)

THREE TESTS IN WILDCAT TERRITORY IN NORTH LOUISIANA-ARKANSAS

By Nell Williams

SHREVEPORT, La., Aug. 29.—Three tests in wildcat territory were in the limelight in the Arkansas-North Louisiana division as the week closed. In Arkansas, Owenwood Oil Corp.'s No. 1 Goode, Section 31-16-13, Union County, cored a sandy chalk at 3,022-25 feet and failed to get a showing.

In Louisiana, The Texas Company's No. 1 Mays, Section 27-23-12, Carterville Field, northern Bossier Parish, was dry at 3,088 feet after bailing 1 foot of sandy shale. Foster and associates' No. 1 Nabors, Section 33-10-12, Pleasant Hill district, Sabine Parish, tested dry at 3,065 feet.

The Owenwood test is three-quarters of a mile northeast of Ohio Oil Co.'s No. 1 Crain, Section 1-17-14, which caused considerable interest in wildcatting circles the latter part of June when it was completed as a 50-bbl. pumper in rank wildcat territory. The Ohio well still is pumping around 47 bbls. daily from a sand at a total depth of 3,014 feet. The Owenwood test is to be deepened.

The Carterville test since being bailed dry at 3,088 feet has been cored to 3,094 feet and at present is in a sandy shale. The Pleasant Hill test has been drilled to 3,084 feet, where it is shut down for rig repairs.

Several interesting new wildcat tests are being started in the division, including W. D. Wingfield's No. 1 Rowland, Section 8-17-11, on the edge of Union County, Arkansas and Pitcher and associates' No. 1 Arkansas Timber Co., Section 21-17-11, Union County, for which locations were staked the past week.

North Louisiana

Bienville Parish

Edwin J. Forest's No. 1 Perritt, Section 11-17-6, is drilling at 410 feet. Kimbrough and associates have abandoned No. 1 Cargle, Section 27-15-8, after drilling at 1,780 feet.

Bossier Parish

Doern and associates' No. 1 Thomas, Section 10-22-11, is standing 1,500 feet in fluid, 50 per cent oil and 50 per cent salt water. Tubing is being set to flow the well. The production is from a sand at 3,045-46 feet. Sligo Syndicates' No. 1 Jeter, Section 23-17-12, has been completed making an estimated 2,000,000 feet of gas and 20 bbls. of oil from a depth of 4,272 feet.

In the Carterville district where the drilling activity of the parish is centered, Bahan & Davis are drilling at 1,650 feet in No. 2 Mays, Section 22-23-12. Magnolia Petroleum Co. has set 10¾-inch casing at 808 feet in No. 1 Dodson, Section 16-23-12. This company has cemented 8¼-inch casing at 3,086 feet in No. 1 Rogers, Section 21-23-12. Simms Oil Co. is rigging up for No. 1 Dodson, Section 15-23-12. The Texas Company has a derrick for No. 1 Wilkerson, Section 36-23-12. Woodley & Collins have set 8-inch casing at 3,060 feet in No. 1 M. A. Farrington, Section 22-23-12. On the J. S. Farrington farm, Section 23-23-12, these operators are drilling at 2,-

(Continued on Page 116)

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Fourteen Tests in the New Dale Field

Some May Be Completed Within Three or Four Weeks and These Locations Are Expected To Prove Field. Adams Gas Extension

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., Aug. 29.—Derricks are up for 14 tests in the new Dale Field in Caldwell County, 3 miles east of Dale and 5 miles southeast of the Lytton Springs Field. Rigs are in or being moved in on the entire 14 and 4 of them have spudded in. Several others will be started drilling before the end of this week. Not more than around three or four weeks will be necessary to complete a well and it is quite likely some will be completed in much less time. Contracts are being taken, it is understood, for around $3.50 a foot. Murchison Oil Co. started drilling last week No. 1 Beatty in the Nich. Kelly Survey approximately three-quarters of a mile due southwest from the discovery well and the Sun Oil Co. spudded in its No. 1 Beatty, approximately half way between the Murchison location and the discovery well. The Sun Oil Co. also started drilling No. 1 Tally in which Empire Gas & Fuel Co. has an interest, a little over a half mile southeast of the discovery well. The Texas Company started drilling No. 1 Clingensmith, a northeast offset to the discovery well and on a lease which The Texas Company owns jointly with the Humble company. Rig is moving in for No. 2 Clingensmith one location southeast of No. 1. William F. Morgan has rigs moving in and will be drilling by the time this is being read on two locations, one No. 1 O. T. Moore, three-quarters of a mile due south of the discovery well, and the other No. 1 Osteen, a half mile due east of the discovery well. This gives a circle of wells on the southwest, south, southeast and east around the discovery well. Also Weinert and others are rigging up and about to spud in on a test about a mile nearly due south from the discovery well.

The Texas Company has locations for eight wells all told, including three in which the Humble company is interested, and rigs on all of them. They circle the discovery well on the west, southwest, south, southeast and east and northeast at distances of one to two locations. All of these will probably be drilling within the week. Wheelock & Collins have made several locations a little to the southwest of the discovery well and between it and the Sun's No. 1 Beatty and derricks are expected to go up on these at once.

It is not probable that many, if any, more locations will be made in the field until the 18 now announced are drilled or at least some of them drilled, since their locations will prove the field. Most of the drilling is by major companies. William F. Morgan's two wells are on acreage of the Atlantic Oil Producing Co. Murchison Oil Co., an independent, is drilling on its own acreage. All others are majors. Water shortage has been solved pretty much by drilling contractors.

Trinity Drillers, Inc., extended Meiars Switch and are shipping in water by tank cars. Buchanan & Hall, drilling contractors, are drilling some water wells north of the field. The Texas Company is shipping water to Dale and piping it to the field. Roy C. Moyston is laying a 10-mile line from Lockhart to bring in water. Others are resorting to shipping in water in tank cars and unloading at Dale and piping to the field.

Alworth Field

The Alworth-Stevens-Hild Syndicate has completed No. 14 Garza in Block 11 of Survey 39 in Jim Hogg County, 5 miles south of the Randado Field. It is about a 35-bbl. well at 1,015 feet. Several months ago it drilled its discovery well which made some oil and some water, about half and half. Magnolia owns Survey 236, immediately to the north, and drilled three wells and got some oil and some water. It was thought they were edge wells. Development of the field has been a little slow and new wells have been drilled at some distance from the discovery well rather than to offset it, in an effort to find and develop a pool free from water. A couple of gas wells were drilled and No. 14 is somewhat to the south and east of the other wells drilled in the area and looks like possibly the best well. Magnolia owns all the acreage directly between this field and a half mile of the last producer. Alworth-Stevens-Hild's No. 14 was drilled on the fourteenth location but they have drilled only about a half dozen wells.

Extend Gas Field

Of especial interest in proven field completions is Western Gas & Fuel's No. 2 Schmidt in Medina County in F. Mumme Survey No. 71, nearly a mile north of production in the Adams gas field, which at 1,003 feet is a 4,250,000-foot gas well and an extension of the field. A hypothetical fault line north of the field and running northeast and southwest will have to be moved back a half mile or more due to this well which is getting the gas production at approximately the same depth as other wells in the field and is undoubtedly the same sand.

Ina Oil Field

Another Medina completion of interest is No. 7 Schmidt of the Golden West Oil Co. in the Ina oil field, 2 miles north of the Adams gas field and the first cable tool drilled well in the field. It set casing at 885 feet and was completed at 921 feet with the drill 9 feet in the sand and started off bailing at the rate of 60 bbls. a day. Casing was set 12 feet lower than in other wells, it is claimed, due to more accuracy in locating the top of the sand. As a result silts formation above the oil sand which has hindered production in other wells in the field was cased off. The well with cable tools was more or less an experiment. It was planned to use it for introducing air into the field but it looks like such a good producer it may be completed and other wells used for air. A week of steady production from the well is expected to tell whether it has solved the problem of the field, development of which has been held back due to mechanical difficulties in getting the oil out of the ground.

All other completions of the week were of a routine nature in the proven fields.

Kingsville Field

In the Kingsville Field the Humble ratholed down to 2,800 feet in its No. 2-B Dennett in Block 13, Section 38, but failed to get any production and is plugging back and will complete at 2,210 feet where it is just a little shallower than No. 2 Gulf-Dennett, one location south.

Carolina-Texas

There are to be two deep tests in the Carolina-Texas gas field in Webb County. Houston Oil Co. is down 1,168 feet in its No. 2-A Barnsley in the east half of Block 12 of Survey 268. This well may stop at 3,000 feet if it finds the gas sand there that is making a big volume of gas in three or four other wells in the field. Otherwise it will go down to 4,500 or 5,000 feet. The other test of that depth has not been started but it is planned by Haynes-Barnsley Syndicate and will be on its leases in Survey 335 of the field. They will be the deepest tests in the field. The next deepest was a well to about 4,000 feet by the Carolina-Texas Syndicate and it was plugged back to 3,000-foot sand and made a gasser.

MIRANDO TERRITORY

Jim Hogg County

Alworth-Stevens-Hild's No. 14 M. Garza, Survey 39, Block 11, in the Alworth Field, completed at 1,015 feet and estimated as making 35 bbls.

Duval County

Humble-Reiter-Foster's No. 6 Kohler, Survey 400, a wildcat test in Duval County, completed at 2,770-78 feet, estimated good for 75 bbls. Test is waiting for pump.

SAN ANTONIO DISTRICT

Caldwell County

Magnolia Petroleum Co.'s No. 1 Laura Rios, J. Henry Survey, in Luling Field in Caldwell County, completed at 2,132 feet, making 20 bbls.

Bexar County

Associated Petroleum Co.'s No. 4, J. Kohler, in the Somerset Field, completed at 1,325 feet, making 8 bbls. on the pump.

Medina County

Western Gas & Fuel Co.'s No. 1 Schmidt, Survey 71, Adams Gas Field, completed at 1,003 feet, gauging 4,250,000 feet of gas and extending field three-quarters of a mile to the north.

Milam County

McCormick-Noack & Laning's No. 2 Shelton, William Allen Survey, in the Rockdale Field, 300 feet southeast of No. 1, completed at 1,466 feet, making heads, initial production 35 bbls.

San Patricio County

Moody Oil Corp.'s No. 7 Rachal, in the White Point gas area, has been completed with 1,015 pounds of rock pressure and turned into Houston Gulf Gas Lines. Estimated at 50,000,000 feet.

NEW LOCATIONS

Caldwell County

The Texas Company's No. 2 Beatty, Nich Kelly Survey, is location 150 feet to northeast and southeast lines; No. 3 Beatty, Nich Kelly Survey, 150 feet to southeast and 150 feet to southwest lines, has derrick up; No. 1 Lackey, Nich Kelly Survey, 150 feet to northeast and northwest lines, has derrick up; No. 2 Lackey, Nich Kelly Survey, 450 feet to northeast and 150 feet to northwest lines, has derrick up; No. 3 Lackey, Nich Kelly Survey, 750 feet to northeast and 150 feet to northwest lines, has derrick up.

The Texas Company and Humble's No. 1 Clingensmith, Squire Damon Survey, 150 feet to southwest and 500 feet north corner of E. T. Lackey lease, offsetting discovery well, has derrick up and machinery moving in; No. 2 Clingensmith, Squire Damon Survey, 150 feet to southwest line and 150 feet northwest of north corner, has derrick up; No. 3 Clingensmith, Squire Damon Survey, 300 feet southeast of No. 2, has derrick up and machinery moving in. This test offsets the Texas Company's No. 1 Lackey.

William F. Morgan, Inc.'s No. 1 Osteen, W. C. Swearingen Survey, at 150 feet to northwest and southwest lines of survey, has derrick up and rig moving in; No. 1 O. T. Moore, G. Jasper Gilbert Survey, at 150 feet to northwest lines of O. T. Moore 200-acre tract and 150 feet to northwest line of tract, has derrick up and machinery moving in.

Weinert and others' No. 1 well, George W. James Survey, is location 150 feet to northeast lines of survey, and rig is being moved in.

Murchison & Roxana's No. 1 Copeland, Nich Kelly Survey, has been spudded in.

Sun Oil Co. and Empire Gas & Fuel Co.'s No. 1 Tally, W. C. Swearingen Sur-

(Continued on Page 87)

HUMBLE MAY OPEN AN OIL FIELD IN DUVAL NORTH OF COLE GAS FIELD

By B. D. Stevenson

SAN ANTONIO, Tex., Aug. 29.—It looks like Humble Oil & Refining Co. was going to open an oil field in Duval County about 12 miles due north of the Cole gas field. The well is on acreage of Reiter-Foster Oil Corp., which has a one-fourth interest in the proposition. It is in Survey No. 400 and is the No. 6 Kohler. It is rated as a 75-bbl. well in sand at 2,770-78 feet and is 600 feet west of No. 4 Kohler, which at a little less depth made a 20-bbl. well and was drilled some months ago. No. 6 is the first well drilled in that area since. No. 2 Kohler, a mile farther west, is a dry hole. It was drilled before the other two. Size of the well compared with the depth is not large, and the distance between No. 4 Kohler, the 20-bbl. well on the east, and No. 2, which is a dry hole on the west, is only a mile, but a mile is as wide as any of the pools in the Laredo territory, and the field has plenty of chance to spread out north and south. Six miles south of this well and between it and the Cole gas field is the Simms Oil Co.'s gasser on Survey 666, which made about 4,000,000 feet of gas at about 1,765 feet.

Kerr County

Walker-Van Duyn's No. 1 Leigh in Kerr County at Center Point, which was thought for a time to be in Pennsylvanian formation, drilled to 3,000 feet and then went back and shot the hole at about 1,600, twice. The first shot was rather light and the second was heavy, but the shooting was without results. The well is a considerable distance from any production and in a territory where there has been very little drilling. The main interest from a scientific standpoint was in knowing whether or not there was any Pennsylvanian there, and geologists seem to be in doubt. It looked like Pennsylvanian, but there are strong indications that it is Cretaceous. It was a surprise to many, however, that the hole didn't run into granite at less than present total depth.

Empire Southern Oil Co. is 125 feet into shale and sand at 2,800 feet, showing some gas in its No. 2 Smith, a few miles west of Cuero in DeWitt County, and will set casing and test. The well is three-quarters of a mile west of No. 1 Smith, which showed some gas at about 2,450 feet. No. 1 was never tested out to see what it would make, but the driller was confident it would make a good commercial gasser. No. 2 is said to be showing some oil in the gas, as the gas bubbles break on the ditch. These wells are 50 miles south of the Luling oil field and 50 miles north of the Refugio gas field, which fields are the nearest production. It will be 10 days before No. 2 Smith can be tested out.

Maverick County

Rycade Oil Corp.'s No. 2 Sullivan in Maverick County is showing some gas at 4,885 feet. Rycade's No. 1 Chittim, 4 miles southwest of No. 2 Sullivan, got wet gas at 5,517 feet and at 5,630 feet made about 29,000,000 feet of gas and about 100 bbls. of oil. Log of No. 2 Sullivan is running higher considerably and in the opinion of some oil men at least stood a better show of getting production. No. 1 Chittim is still fishing for 3,000 feet of drill stem, and No. 2 Chittim, 3 miles south and a little east of it, will probably start drilling this week. Rycade had a big block under lease, but

(Continued on Page 112)

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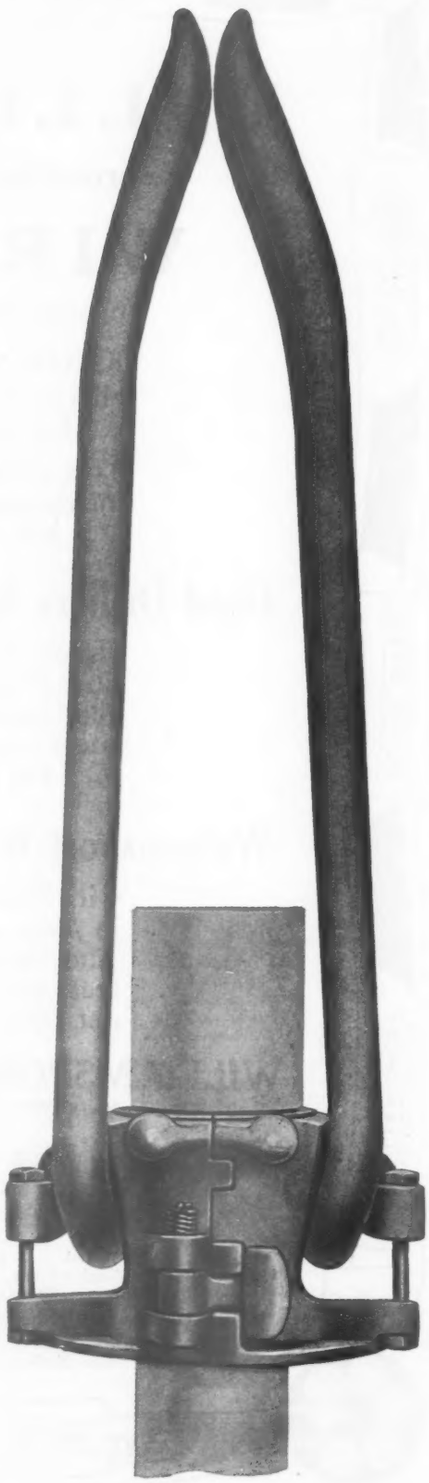

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Expect Big Demand for Coastal Crude

Operators Feel No Change in Prices Likely Because of Winter Requirements for Zero Test Lub Oils

By Staff Correspondent

HOUSTON, Tex., Aug. 29.—No reduction in credit balance quotations on Gulf Coast crude is anticipated in the immediate future, regardless of what may happen to the light gravity crude markets. Those who are in a position to speak with authority express the opinion that the demand for coastal crude about equalizes the supply.

There is a fair demand now, said this authority, and, with the advent of cold weather will increase because of the inability of the coastal grades for the manufacture of lubricants.

A little more work can be noted in the older pools, such as Humble, Sour Lake and Batson where there are still some independent operators who have been nursing small wells and getting a fair return on the investment. Most of these old leases are equipped with air compressor plants to help stimulate production and also pumping power plants to which are connected from 10 to 30 wells, one or two men being sufficient to look after the plant and the wells. The leases furnish enough gas to operate the plants and thus the overhead is reduced to a minimum. By "working-over" the old wells and drilling new holes from time to time the average of the leases is maintained at about the same yield from month to month. In many cases the operators themselves don overalls and are to be found at work for several hours each day.

Completions during the week total 27, of which 5 were dry holes and 8 salt water wells, leaving 17 net producers. The new production aggregates 6,020 bbls., compared with 8,890 bbls. last week. The Pierce Junction Pool furnished 4,000 bbls. of the total and Spindletop 885 bbls. Nine wells are bailing as this review ends.

Production for Week

The estimated daily average gross production for the week of August 27 is placed at 136,725 bbls.

The estimate for each pool is as follows:

Pools—	Daily Av.
Boling	1,875
Batson	1,340
Blue Ridge	2,815
Big Creek	3,050
Barber Hill	890
Dayton	275
Damon Mound	875
Edgerly, (La.)	2,000
Goose Creek	7,975
Humble	4,200
Hull	14,450
High Island	115
Jennings, (La.)	1,050
Lockport, (La.)	5,050
Markham	400
Nash	1,135
Orange	4,900
Orchard	65
Pierce Junction	6,700
Piedras Pintas	90
Spindletop	54,200
Saratoga	1,150
Sour Lake	4,235
South Liberty-South Dayton	2,725
Stark, (La.)	525
Vinton, (La.)	5,075
Welsh-Anse La. Bute (La.)	20
West Columbia	8,625
Miscellaneous	970
Totals	136,775

Includes Nacogdoches, Washington, Kleberg and Austin counties, Texas, and Cameron, Calcasieu and Iberia Parishes, Louisiana, the South Louisiana pools are credited with 9,120 bbls. of the gross.

Southwest Fields

The estimated daily average gross for the southwest fields is placed at 32,075 bbls. The estimate for each field is as follows:

Fields—	Daily Av.
Luling	17,200
Mirando	10,850
Somerset	900
Callihan	20
Rockdale-Minerva	1,005
Lockhart (Lytton Springs)	2,100
Total	32,075
Grand total for week	168,850
Grand total for last week	168,793
Net increase	57

Coastal Completions

The Pierce Junction Pool made the best showing of any of the areas during the week, a new deep sand being found on the east side. The Navarro Oil Co.'s No. 2 Cain was deepened to 4,880 feet and 3-inch strainer set. The well came in flowing 2,000 bbls., increasing in 24 hours to 2,700 bbls. and at the end of the week it was flowing 2,500 bbls. The Navarro company's well has a sand 940 feet deeper and only 30 feet distant from the discovery well.

J. F. Bashara's No. 1 M. J. Bashara is flowing 1,500 bbls. at 4,600 feet. The Rio Bravo Oil Co.'s No. 5 Bender is heading 500 bbls. at 2,400 feet. Woodward and Lee's No. 3 Settigast got salt water at 3,200 feet and will be drilled deeper.

The Gulf Refining Co.'s No. 12 Oakwood in the deep sand section at Spindletop came in with initial flow of 1,000 bbls. of fluid, 60 per cent sediment and water, at 5,200 feet. Later the well went entirely to salt water. The Magnolia Petroleum Co.'s No. 6 fee on the south end was a salt water hole at 5,200 feet and is being drilled deeper. Its No. 3 fee is bailing at 5,200 feet. The Gulf Production Co.'s No. 225 fee in the old part of the pool is pumping 85 bbls. at 675 feet.

In the Hull Pool, the Republic Production-Houston Oil Co.'s No. 100 Dolbear, on the east side, is heading 500 bbls. at 2,600 feet, after being worked over.

The Humble Oil & Refining Co.'s No. 3-B Jackson at Sour Lake is pumping 30 bbls. at 2,150 feet. It is a worked-over hole.

In the Batson Pool, the Batson Co.'s No. 2 Bates will pump at 1,010 feet. J. K. Everett abandoned No. 1 King at 1,450 feet. Christian & Dutton's No. 1 Kirby is bailing at 1,920 feet.

The Brownie Babbittee Oil Co.'s No. 5 McLean in the Orange Pool is heading 250 bbls. at 3,580 feet. The Tillery Oil Co.'s No. 1 State land on Cow Bayou is a salt water well at 3,360 feet and will be deepened. The Texhoma Oil Co.'s No. 16 Chesson is bailing at 3,650 feet. These are all worked-over holes.

The Gulf Production Co. has a pumper in 11 West -Schenck on the south flank of the Blue Ridge Pool, 14 miles southwest of Houston, at 3,900 feet. The Abercrombie Oil Co.'s No. 3 West-Schenck is bailing at 3,800 feet.

The Southern Exploration Co.'s No. 7 Freeman in the shallow bay waters at Goose Creek is bailing at 3,000 feet, following a work-over.

South Louisiana

The attempt to extend the Edgerly Pool to the northeast failed when McDaniel & Ellis' No. 1 Eaker bailed salt water with strainer set at 3,800 feet. The Gulf Refining Co. got the saline fluid in No. 42 Bright-Penn at 3,725 feet.

The Gulf company's No. 43 Bright-Penn is being deepened from 3,150 feet. Wilson & Broach's No. 4 Wilson is drilling around 3,376 feet with a derrick up for No. 5 Wilson. The Rex Petroleum Co.'s No. 7 Hunter is at 3,290 feet. The Hercules Oil Co.'s No. 1 Paraffine is sidetracked at 3,160 feet.

In the Vinton Pool, Morris McLean's No. 4 Gray is pumping 70 bbls. at 1,680 feet.

The record for the week in the old Jennings Pool shows two producers, one abandoned and one salt water well. The Boliward Oil Co.'s No. 4 S. F. S. is good for 125 bbls. on the jack at 1,575 feet. The Gulf Refining Co.'s No. 1 Leckelt is making 80 bbls. of pipe line oil and 250 bbls. of salt water at 1,725 feet. The Texas Company abandoned No. 103 Latrielle at 2,600 feet. The Yount Lee Oil Co.'s No. 1 Latrielle bailed salt water at 2,250 feet. It is the Yount Lee company's initial test in the pool. The Rio Bravo company abandoned Nos. 1 and 2 Landen, south of Bryan, Brazos County, Louisiana, at shallow depths and is now drilling No. 3 at 1,355 feet.

Water at Spindletop

As the week ended, the Yount Lee Oil Co. completed No. 36 Gladys at Spindletop at 3,350 feet, flowing 1,500 bbls., 55 per cent salt water. This and other recent completions, all of which showed a large percentage of salt water, indicate that water has permeated the sands in the deep section.

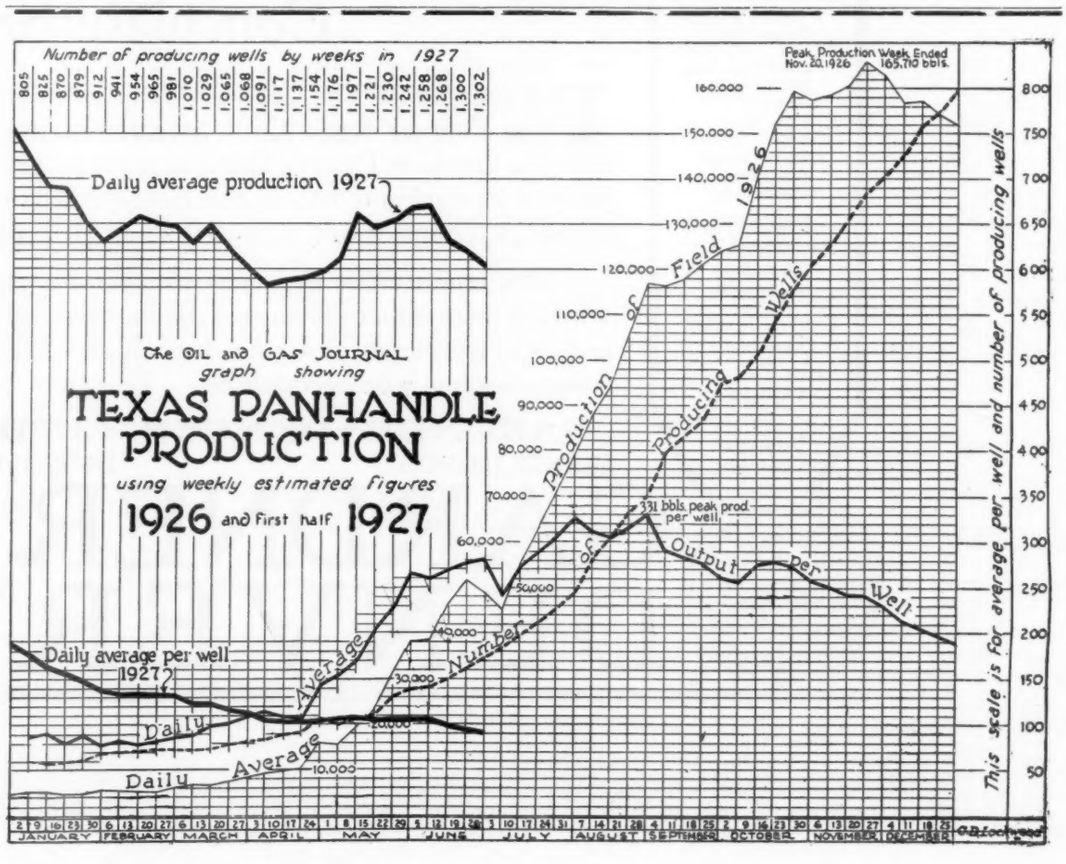
Pierce Junction

In the Pierce Junction Pool, the Rio Bravo Oil Co.s No. 6-A Settegast is at at 2,090 feet and No. 18 is below 4,100 feet. No. 3 Bender is around 3,500 feet. The Gulf Production Co.s No. 3 Jones is at 4,325 feet. The Moody Oil Co.s No. 1 Hume is about 5,010 feet. The Leonard Petroleum Co.s No. 1 Gilmore is drilling at 4,156 feet. Anderson & Plumbers' No. 1 Whitehead is working over at 4,150 feet with a location made for No. 2.

In Hull Pool, the Republic Production-Houston Oil Co.'s joint Nos. 26 and 54 Dolbear are being deepened. The Gulf Production Co.'s No. 29 Phoenix is deepening at 2,800 feet. The Texas Co-Vacuum Oil Co.s Nos. 3 and 5 Taylor are drilling at 3,245 feet and 1,340 feet respectively, with a location made for No. 7.

The Humble Oil & Refining Co.s No. 71 Smith, on the east side, at Goose Creek is at 4,980 feet and No. 72 is below 4,450 feet. The Gulf Production Co.'s No. 26 Smith is at 4,075 feet. No. 1 in San Jacinto Bay is at 4,519 feet and No. 14

(Continued on Page 87)


Number of producing wells by weeks in 1927
805 825 870 879 912 941 954 965 981 1010 1029 1065 1068 1091 1117 1137 1154 1176 1197 1221 1230 1242 1258 1268 1300 1302
Peak, Production Week Ended Nov. 20, 1926 165,710 bbls.
Daily average production 1927
The Oil and Gas Journal graph showing
TEXAS PANHANDLE PRODUCTION
using weekly estimated figures
1926 and first half 1927
Production of Field 1926
Producing Wells
331 bbls. peak prod. per well
Output Per Well
Number of Wells
Daily average per well 1927
Daily Average
Daily Average
This scale is for average per well and number of producing wells
160,000
150,000
140,000
130,000
120,000
110,000
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
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10,000
800 750 700 650 600 550 500 450 400 350 300 250 200 150 100 50
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Ohio Oil Acquires Oregon Basin Area

Purchases Majority of Enalpac Co. Stock. Midwest Gets Big Gas Flow in Sundance Test on Iles Dome

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Aug. 27.—The completion of a deal whereby the Ohio Oil Co. purchased the majority of the capital stock of the Enalpac Oil & Gas Co., a subsidiary of the Franco-Wyoming Oil Co., in order to acquire control of 800 acres of prospective oil land on the top of the Oregon Basin Structure in the Big Horn Basin in Wyoming, was one of the outstanding developments of the week. The Ohio found oil in one of the lower horizons on that structure last spring, the well being good for at least 3,000 bbls., while various reports credit it with a much greater capacity. Facilities for moving the oil are nearing completion. Two more locations have been made in the Hiawatha Dome region, near the Colorado line, in Sweetwater County, and the W. T. Morris interests have signed a contract for the sale of its gas in the one well on the Colorado side to the parties planning a pipe line to Salt Lake City. One completion in Salt Creek was reported for the week.

The Midwest Refining Co. has a big flow of gas in its Sundance sand test on the Iles Dome in Colorado, the gas being found just above the objective in approximately the same volume encountered in the discovery well which came in for 2,600 bbls. just below the gas. The General Petroleum Corp., after going through 4,800 feet of salt in western Colorado, appears to be near the quitting point unless something happens soon. There were two failures reported in the Four Mile Extension of the Florence Pool in Colorado.

In Utah, the gas encountered in the Union Oil Co. of California's Lisbon Dome test proved to be another pocket. The Utah Southern Oil Co.'s test on the Cedar Mesa Dome in San Juan County, has cut a sand with discouraging results. The Boundary Butte exploratory well, which influenced congressional legislation and was the subject of litigation, is resuming operations.

The starting of two tests in the vicinity of the Texas Production Co.'s gas well in Eddy County, New Mexico, is the most encouraging feature in that area. Several failures are reported in that state.

Wyoming Developments

The acquisition of approximately 800 acres on the top of the Oregon Basin Structure in Park County, Wyoming, by the Ohio Oil Co. formerly held by the Enalpac Oil & Gas Co., is considered one of the most important acreage deals made in the Rocky Mountain area for some time. The Enalpac holdings consisted of drilling agreements with permittees and others. In order to overcome certain difficulties in the way of a successful conclusion of the negotiations, the Ohio company purchased 51 per cent of the stock of the Enalpac Oil & Gas Co. from the Franco-Wyoming Oil Co. The latter was one of the pioneers in Salt Creek. Additional stock was acquired from individual owners, but to what extent is not known. The basis for the purchase of the Enalpac stock was reported to be $50 a share. The company has 400,000 shares of no par value outstanding. The Ohio company then entered into an agreement with the Enalpac company for the transfer of the contracts and agreements on the Oregon Basin acreage. The consideration involved was not made public, but is said to have been in the neighborhood of $2,000,000.

The Ohio company now controls the cream of the acreage on the structure, which is described as being comparable with Salt Creek in size. It is becoming more apparent that the Ohio company is going in for a big play on black oil production in the Big Horn Basin, and oil from the new discovery on the Oregon Basin Dome will soon be moving to storage, or to market. There are all kinds of rumors going the rounds as to what No. 3 Sonners, Section 8-51-100, will do in the way of production. This is the well which found oil in the Tensleep sand last spring and which was shut down for lack of storage. Oregon Basin has been proven for gas for a number of years, the Wall Creek and Dakota horizons being the source of production. The holdings taken over from the Enalpac company had three wells in the gas sand in the Cloverly formation. The Ohio company had drilled two wells to gas in the Wall Creek several years ago. The various efforts made to prove the structure since then have been directed principally towards reaching the lower Embar and Tensleep sands. No. 3 Sonners was the first of these to penetrate the Tensleep where it found oil after shutting off gas in the Embar.

Pipe Line to Railroad

The well was shut down upon reaching the sand until facilities for taking care of the oil could be provided. These are nearing completion and include the construction of an 8-inch pipe line from the field to the Chicago, Burlington & Quincy Railroad near Cody, by the Illinois Pipe Line Co., the building of loading racks, the erection of two 80,000-bbl. tanks at the loading racks, and a 35,000-bbl. tank in the field. The rumors credit the well with being capable of making anywhere from 1,000 to 30,000 bbls. a day. The latter figure resulted from a report that a representative of the United States Bureau of Mines visited the well recently and had the company open it when it filled a 250-bbl. tank in 13 minutes. The company has not given out much information, and this is published only as some of the gossip going the rounds. However, a 13-minute test is not conclusive as to what it will make in a 24-hour period, and the figure used by most of the operators is that the capacity of the well is a minimum of 3,000 bbls. a day.

The Ohio Oil Co.'s No. 1 Batson, Section 6-50-100, another Oregon Basin test, is about ready to commence spudding. The Producers & Refiners Corp. is reported to have succeeded in consolidating three permits on the structure and to have entered into a drilling agreement with the permittees. The Continental Oil Co. is drilling at 400 feet on a state lease in Section 16-51-100 and the Linco Petroleum Co. has two wells under way on Section 24 and 33-51-100. The S. C. Ferdig interests have drilling wells on Sections 7, 19 and 28-51-100.

Hiawatha Dome

The Hiawatha Dome area, which straddles the boundary between Moffat County, Colorado, and Sweetwater County, Wyoming, is attracting considerable attention The W. T. Morris interests have a 57,000,000-foot gas well on the top of the Hiawatha Dome on the Colorado side. This group has entered into a contract with the Hope Engineering & Supply Co. for the sale to it of the gas from its wells. This contract is supplementary to the option-to-purchase agreements the Hope company recently made with the producers of gas on the Baxter Basin Structure in Sweetwater County, Wyoming, and the Clay Basin Structure in Utah, with a view to constructing a gas line to Salt Lake City and Ogden, Utah. The Ohio Oil Co., which is drilling on the Colorado side, is said to have agreed to sell its gas to the Hope company, which, with the Morris agreement, gives those interests control of most of the gas to be produced. The Morris interests were offered, it is said, 4 cents per 1,000 feet and an interest in the pipe line company, or 5 cents without the interest. It was not announced which option was taken. The Reiter-Foster Oil Co., which is drilling on a 640-acre state lease on the Colorado side, has not made any agreement for the disposal of its gas, should it be encountered in the test now going down. The Prairie Oil & Gas Co., which is preparing to drill on NW SE, Section 18-13-99, Alkali Creek Dome, in Sweetwater County, one of the four structures in that region, is rigging up. The W. T. Morris interests have made a location on the SE SE of Section 13-12n-100, in Sweetwater County, on the Hiawatha Dome, 1 mile north of the state line. Unknown parties have made a location on SE SE, Section 24-12n-100, which is almost on the Colorado-Wyoming line. This, probably, is the Continental Oil Co.

The Midwest interests reported one completion in Salt Creek the past week, this being No. 25, NE, Section 26-40-79, for the Wyoming Oil Fields Co., which had an initial production of 74 bbls. from the First Wall Creek at 1,031 to 1,141 feet. E. T. Williams Oil Co.'s No. 21-A Middy, Section 11-39-79, is preparing to shoot at 2,503 feet.

Big Horn Basin

Utah Oil Refining Co.'s No. 2 Weller, NE Section 36-43-91, Black Mountain Structure, Big Horn Basin, topped the Embar sand at 2,918 feet and the oil rose 2,300 feet in the hole. Drilling continued to 2,971 feet when a little water began to make its appearance, and the well is shut down waiting for orders. Same company's No. 1 State, Section 36-43-91, is in gray shaly sand at 1,425 feet, and No. 1 Avery, NW Section 5-42-90, which was reported in sand last week at 3,100 feet, was still in sand at 3,262 feet. Same company's No. 1 Fort Collins, SE Section 26-43-91, is running 6¼-inch casing at 3,438 feet. Utah Oil Refining Co.'s No. 1 Government, SE NW, Section 29-56-97, Garland Dome, is bottomed at 2,044 feet and carrying the 8¼-inch casing at 2,007 feet. In the Lost Soldier district, Utah Oil Refining Co.'s No. 7-A, SW Section 2-26-90, will have to cement again at 2,525 feet, the first job being a failure.

In the La Barge district, Utah Oil Refining Co.'s No. 1 Bird, SE Section 21-27-113, is in an oil sand at 1,290 feet, but it is not known yet what it will make as work on the casing to shut off water is in progress.

Southern Wyoming

The interest being manifested in the Sundance sand as a producing horizon in northwestern Colorado serves to attract attention to some recent completions in that formation in southern Wyoming. Producers & Refiners Corp.'s No. 19, SE Section 25-26-87, in the Ferris Field, which came in with an initial production of 250 bbls., was a producer from the Sundance at 2,628-70 feet. The Prairie Oil & Gas Co.'s No. 3-C, Section 34-26-88, on the Mahoney Dome, had an initial flow of 19,000,000 feet of gas from the Sundance at 2,785-2,813 feet. Producers & Refiners also had a small well in the Sundance at 2,120-64 feet in its No. 1 Wyanna, Section 25-26-87, on the Mahoney Dome. It will be recalled that last year a well making 6,000 bbls. initial was completed in the Sundance in the Salt Creek Field, and that horizon also is productive in the Kevin-Sunburst Field in Montana. It is apparent that the sand is continuous over a very large area.

The Ohio Oil Co.'s No. 3 State, Section 36-48-100, on the Buffalo Basin Structure in Park County, will be saved for the present as a gas well at 1,635 feet, at which depth it made 5,000,000 feet after shutting off water. It may be drilled deeper at a later date. The company is starting No. 2 Buffalo, Account No. 21, on Section 3-47-100. The rig has been completed.

Texas Production Co.'s No. 1 Cortez, NW Section 15-26-113, in the La Barge area, a diamond drill test, was in sand at 166 feet. This is one of a series of holes being put down with diamond drill. Greybeal Syndicate's test on the Greybeal Structure, Section 16-28-81, Carbon County, has a hole full of water from the Dakota at a total depth of 3,920 feet. Rotary will be installed to carry the test on down to the Sundance.

Colorado Operations

The General Petroleum Corp. is reported getting near the quitting point in its No. 2 Wilcox, Section 6-47-19, Paradox Valley, Montrose County, near the Utah line. It is still drilling in salt below 5,800 feet, having had more than 4,800 feet of salt up to this time. This is probably the thickest bed of salt ever penetrated by the drill and compares with around 1,500 feet heretofore considered the maximum. It is understood the hole will be carried at least an additional 500 feet in an effort to bottom the salt and then it will be decided whether a flank well will be drilled. While the well is located a little down from the top of the structure, the cores show that a flowage of salt into the dome has taken place and another still lower on the structure may be put down in an effort to find production. The well had shows of oil and gas similar to those encountered in the Colorado River structures south of Moab on the Utah side.

The Continental Oil Co. reports two more failures in the Four Mile District in Fremont County. Its No. 1 Lombardy, Section 2-19-70, is being abandoned at 3,000 feet, and its No. 2 D. & R. G., Section 35-18-70, is being plugged at 1,600 feet. The latter is on the right of way of the Denver & Rio Grande Western Railroad, which cuts a 50-foot path through the heart of the field. The company took the lease on this ribbon of ground to save itself from drilling numerous offsets at disadvantageous locations had the lease gone to independents. Two wells on the strip have proven failures. The Four Mile district is an extension to the west of the town of Florence in the old Florence Pool. It extends almost up to the city limits of Canon City. The Continental company has the cream of the acreage and has three wells making an aggregate of better than 500 bbls. a day. The pool is making about twice the production of the old Florence Field, including the south extension. The new area is rather spotted, about 18 wells drilled by independents having been failures with only a few producers. However, the drilling is not expensive as it is all in shale, the production coming from sandy shale streaks at varying depths. The oil is of the same grade as that found at Florence and the pool appears to be a continuation of that field, being all shale oil especially rich in lubricants. The Florence Pool has more than 14,000,000 bbls. of oil to its credit, none of which came from a sand, all wells being pumped, and no important gas discoveries having been made.

Montezuma County

An operation which has been frequently mentioned, but about which few reliable facts have been available owing to its remoteness and its not being regularly scouted is that of Ralph R. Burke and associates on what is known as the Mancos River structure in Montezuma County in the extreme southwestern corner of the state. The wells are located on Tract F of the Southern Ute Indian Reservation 30 miles south of Cortez and

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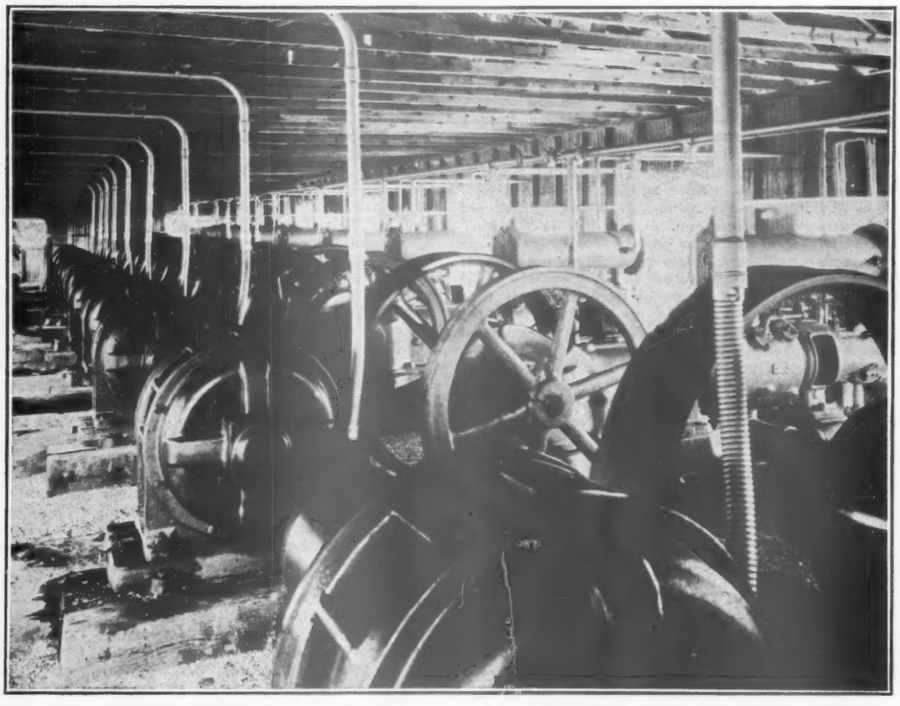

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25 miles north of the Hogback-Rattlesnake Field in New Mexico. It is about 15 miles west of the four states corner and 5 miles north of the New Mexico line, on unsurveyed land. The tract embraces 4,800 acres for which Burke paid $1,000 for the lease at an auction sale in 1925.

Six wells have been drilled and No. 7 is now drilling. Of the six wells completed, five have been plugged. The other, No. 4, is producing about 15 bbls. of 38 gravity oil a day from a depth of 375 feet. Water was found in the Dakota in all these wells. The Dakota is about 750 feet below the surface and the wells start in the Tocito horizon. Shows of oil were encountered at around 375 feet and also in shale just above the Dakota. Surface evidences of a structure are slight, but the numerous shows of oil have encouraged the drillers to go ahead with the series of shallow wells in hopes of opening a pool.

The Mancos River Structure is sometimes confused with the Mancos Dome, farther to the north, in Township 35n, Range 13w, near the town of Mancos, in the same county. C. S. Ringle and others have started a test on their structure, it being their No. 1 Hall, SW NW, Section 9-35-13. This well is drilling at 200 feet.

In southern Colorado, the Parker Club's No. 1 Adams, Section 32-34-56, near Branson, is drilling below 1,940 feet in red slate after shutting off several thin strata carrying water. The hole was underreamed and the 10-inch lowered to 1,843 feet for this purpose. Foley & Goldsworthy's No. 1 Government, Section 11-30-69, Las Animas County, has resumed drilling below 1,500 feet after running 10-inch casing. This test, which is headed for the Pennsylvanian, had a show for 500,000 feet of carbon dioxide gas at 907 feet. It was decided to run the 10-inch when indications pointed to the close proximity of the top of the Pennsylvanian.

Huerfano Oil Co.'s No. 2 Oak View, Section 10-29-69, Huerfano County, is drilling at 855 feet in the Pierre shale and is preparing to run 15½-inch casing. It had a small show of gas at 510 feet. This well is an offset to a test drilled by the Panuco Exploration Co., which has a half interest in No. 2, which had considerable gas at 3,462 feet, where drilling stopped on account of having run out of hole. Gas from No. 1 is being used for fuel in No. 2.

Northern Colorado

In northeastern Colorado the Platte Valley Petroleum Co. has resumed drilling at 3,100 feet in its No. 1 Patterson, Section 24-6-61, Weld County, after being held up waiting for casing. Northeastern Colorado Oil Co.'s No. 1 State, Section 36-8-55, in Logan County, is bottomed at 4,760 feet and lowering the 6¼-inch casing. The formation is hard rock containing mostly lime.

Several new tests in the northwestern area are expected to be started shortly. R. T. Charbonnell, of Denver, has placed on record at Steamboat Springs a number of leases on land located on Egeria Creek, near the town of Tonopas, 35 miles southeast of the Tow Creek operation in Routt County. This structure was leased by some of the larger companies in 1924 following the bringing in of the Moffat Dome, but leases lapsed without being tested following numerous failures in the Dakota in that region. Possibilities in the Sundance below the Dakota have renewed the interest. It is probable that a test will be drilled on the Chimney Creek Dome in Routt County as result of the straightening out of numerous lease difficulties. Several years ago the Plateau Oil Co. drilled a well on Section 4-7-86. It had 4,000,000 feet of gas in the Wall Creek at 945 feet, a show of oil at 875 feet and was abandoned in the Dakota at 1,320 feet. Last year leases were taken on the structure by Steamboat Springs parties who subleased to the Elkhead Development Co. No. 1 Chura, Section 4-7-86, was drilled several hundred feet when it was shut down, due, it was said, to inetrnal dissensions. Dr. J. G. Clayton of Craig is reported to have straightened out the tangle and recorded numerous instruments putting things in shape for drilling. The identity of the interests he represents has not been disclosed.

Thornburg Dome Test

The Marland Oil Co. of Colorado and Union Oil Co. of California have changed their plans regarding No. 9-A Wymore, Section 16-3-91, Thornburg Dome, Moffat County, which was shut down at below 1,600 feet following the failure of No. 1 Clark in the Sundance on that structure. Intentions were to plug, but the geological department pointed out that water encountered below 1,200 feet which was not found in the other wells, probably indicated a faulted condition that justified continuing the test. The Essok Oil Co.'s No. 1 Martin, Section 5-1s-70, Boulder County, Parallel Dome, appears to have straightened out difficulties arising from cavey ground and has seated the 8¼-inch casing at 4,206 feet and resumed drilling. Upon the outcome of this test probably depends future plans of the Repollo (Sinclair) Oil Co. in its No. 1 Deines, Section 33-1n-70, which failed to reach the objective Dakota after drilling to below 4,700 feet.

Midwest Refining Co.'s No. 18-SD, SW Section 23-4-92, Iles Dome, Moffat County, encountered a flow of gas at 3,115 feet in the shale above the Sundance sand. The gauge showed a pressure of 1,200 pounds, but no measurement of the flow has yet been made. It is estimated, however, to be in excess of 10,000,000 feet. Instruments for making a test are now on the way to the well. This is the deepest of the five wells drilling for the Sundance sand on this structure following the bringing in of a 2,600-bbl. well in the new horizon by the Midwest in its No. 4 Parkinson, SE Section 22-4-92, last spring. It probably has about 150 feet to go to reach the objective. The gas was found in the same horizon that had 15,000,000 feet in the No. 4 Parkinson. In the latter the sand was found at 3,242 feet.

New Mexico Tests

The discouraging effect of several failures in southeastern New Mexico is partly offset by the starting of new tests which will prove the area around the Texas Production Co.'s No. 1 Robinson in the NE SW Section 25-16-31 on the northeastern side of Eddy County. This well is being completed as a gasser at 3,885 feet at which depth it gauged 8,000,000 feet. It showed for 5½ bbls. of oil which was just sufficent to spur the operators on to make additional tests. One of these will be the Texas Production Co.'s No. 2 Robinson, NW cor. SW Section 25-16-31, less than one-half mile west of No. 1, for which material is being moved to location, and the other is the Pueblo Oil Co.'s No. 1 Gessert, NW NW Section 1-17-31. The latter location is in Lea County and about 1¼ miles south of the No. 1 Robinson. The material for this well is now on the ground.

The Midwest Refining Co.'s No. 1 Terry, SW cor. NW Section 15-18-26, in Eddy County, is the latest test in that area to be abandoned. It is being plugged at 3,156 feet. Flynn, Welch & Yates' No. 4 Dunn, NW NE Section 10-18-28, was dry and abandoned. Total depth was 2,148 feet. Other Eddy County operations are mostly routine. The Hamilton Petroleum Co.'s No. 1 Billings, Section 13-19-26, is to be deepened to 2,500 feet. Former total depth was 1,280 feet and it is now drilling in brown lime at 1,550 feet. Empire Gas & Fuel Co.'s No. 3-A Russell, SE SW Section 35-17-27, is drilling below 830 feet. It had a show of oil at 407-14 feet and salty water at 695 feet. This is in an area where the company has developed a number of small pumpers. Manhattan Oil Co.'s No. 1 Cronin, Section 1-18-27, is shut down at 2,900 feet. The company appears unable to complete the well and it is temporarily abandoned. This formerly was the Moneta Oil Co.

Lea County

In Lea County the Maljamar Oil & Gas Co. has abandoned its location for No. 1 Bearsley in the SW cor., Section 15-17-32, and made a new location in the SE NE NE of the same section where it is drilling below 850 feet. It had a hole full of water at 840-50 feet. Inglefield & Bridges' test, in Section 4-17-34, will set the 6¼-inch casing at 4,912 feet (corrected depth) and is waiting for packer to be set at 4,650 feet. Texas Production Co.'s No. 1 Rhodes, NW Section 22-26-37, has been cleaned out to bottom at 3,040 feet and original flow of 2,000,000 feet of gas has been restored. The band wheel is being repaired preliminary to resuming. Same company's No. 1 Lockhart, Section 5-22-38, topped the salt at 1,630 feet and is undereaming to lower the 10-inch casing. Total depth, 1,691 feet.

In Chaves County, the Texas Production Co.'s No. 1 Wilson, SW Section 29-17-18, on the Dunken Dome, is drilling in brown sandy lime at 4,450 feet. It had 500,000 feet of hydrogen sulphite gas at 4,390 feet. This is the second flow of that quality of gas, another for about 1,000,000 feet having been encountered at around 2,900 feet. This operation was originally started in March, 1925, by T. S. Hogan under a joint agreement with the Texas Production Co. and others. The present operator finally took over the well. The structure has been known for a number of years, but until Hogan went in, no operator had been able to block up sufficient acreage to justify a test. The Midwest Refining, Continental, Gypsy Oil and other companies have acreage on the structure. Before drilling started, the objective sand was logged at around 4,250 feet, so it is apparent that results should be expected soon. There are about 14,000 acres inside the closing contour and the closure is about 250 feet.

Northwestern New Mexico

Northwestern New Mexico shows little of interest, the work being confined mostly to the routine. The Ohio Oil Co. is abandoning its No. 1 Yontz, Section 18-16-9, in McKinley County, at 1,380 feet, the objective sand containing water. This leaves the Ohio company with only one drilling well in New Mexico, this being its No. 1 on Jordan Ridge, near Tucumcari, Section 24-7-29, which is waiting for cement to set after running 6¼-inch casing at 3,530 feet. Cook, Beasly and others, SW cor., Section 17-18-10, had a show of gas in sand at 214 feet, at which depth the well is shut down. The Paramount Petroleum Co.'s test on the Vogt structure, SE cor., Section 15-16-10, is shut down at 700 feet. The H. L Williams No. 1 Pettitt, SW cor., Section 30-18-8, which unconfirmed reports said was good for 200 bbls. at around 1,910 feet, is still an unknown quantity. It had an oil show and sulphur water at 1,837-40 feet. The water was shut off and the hole deepened when more oil was reported, and it may be a small well. The rig is being moved a quarter of a mile to the east where another well will be drilled.

San Juan County

San Juan County reported no completions. The Huerfano Oil Co.'s No. 1 Wiltbank, Section 25-29-11, had a flow of gas sufficient to clear the hole of water at 647 feet. The water is being cased off before drilling into the sand. It is reported that the well is financed to a depth of 800 feet which should carry it to the objective horizon. Continental Oil Co.'s No. 17 on the Munoz lease, Section 2-29-19, Rattlesnake Dome, is redrilling at 2,816 feet. Old hole was bottomed at 3,785 feet. This operation is a test to the Pennsylvanian horizon, the first in that area, and has been drilling for more than a year with more than its share of bad luck. It passed up around

(Continued on Page 131)

ROYALITE NUMBER 4 AVERAGES 603 BBLS. FIRST SEVEN MONTHS OF YEAR

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Aug. 27.—In the Turner Valley Field southwest of Calgary

Royalite No. 4 crude naphtha gusher in the month of July produced 17,141.5 bbls. of 73 Baume naphtha. This is an average of 553 bbls. a day, compared with an average of 561 bbls. in June and 599½ bbls. in May. The decline toward midsummer is seasonal, due to the fact that the recovery of crude naphtha is greater in cold weather. In July the casinghead gasoline recovery from Royalite Nos. 1 and 3 totaled 385.6 bbls. Royalite No. 2 is temporarily closed Since January the production of Royalite No. 4 by months has been: January, 18,846 bbls.; February, 17,829; March, 19,868; April, 18,668; May, 18,693; June, 16,831; July, 17,141; or a total of 127,876 bbls. for the seven months, a daily average of approximately 603 bbls.

Illinois-Alberta Oil & Refining Co. No. 1, LSD 14, Section 12-20-3w5, which averaged 83 bbls. a day of crude naphtha in the first three months of production, shows a slight but steady increase, now making an average of 86.6 bbls. a day with a high figure of 88.7. Illinois-Alberta No. 2 LSD, is rigged up and will be spudded in as soon as some additional diamond drill equipment is secured. No. 2 is a short distance south of No. 1.

McLeod Oil Co.'s No. 3, LSD 16, 1-20-3w5, is pumping around 40 bbls of light crude from the Dakota horizon at 3,200 feet. The oil is pumped through a small pipe line to the Royalite plant where it is stored. McLeod's No. 1, same LSD is pulling the casing preparatory to underreaming to deepen the well to the Madison limestone.

Pumping 62 Bbls.

New McDougall-Segur's No. 1, LSD 14, Section 12-20-3w5, is pumping about 62 bbls. a day of light crude. A 2-inch pipe line is being laid to Black Diamond to handle the production. New McDougall-Segur's No. 2, same LSD, is drilling at 2,110 feet and nearing the Dakota formation in which No. 1 got its production at 2,595 feet.

Vulcan Oil's No. 2, LSD 11, Section 13-20-3w5, is drilling through a caving formation at 3,240 feet after partly casing off the 5,000,000-foot wet gas flow recently encountered. Some light crude oil is seeping into the hole from the upper horizons; considerable of this has been bailed, the crude at times standing 300 feet in the hole.

Spooner Oil's No. 1, LSD 12, Section 13-20-3w5, is at 4,596 feet and drilling in a hard formation. The test got into this formation after drilling through 70 feet of the hard black shale which in Vulcan No. 1 overlay the producing sand. The drill is thought to be working now in the Madison limestone, and as soon as casing has been run below the shales into the lime, a test of the samples will be made for dolomitic content. Vulcan No. 1, on LSD 11, same section, got production at 5,004 feet.

Great West Oil's, SE, Section 7-20-2w5, is reported to have resumed fishing for the tools lost around 3,000 feet. The test is down 5,370 feet and has been held up by the present fishing job for several months. British Dominion Oil Corp., LSD 4, Section 5-20-2w5, is reported to have resumed drilling after cementing casing at 5,990 feet.

Calmont Oils, LSD 2, Section 1-20-3w5, is at 4,012 feet and has finished running casing to within a few feet of the bottom. The 8¼-inch casing is being fitted with a control head through which the cable will be run for drilling. Some light crude is being bailed, about 25 bbls. being brought up in a few hours after the casing was finished; and the test is expected to get commercial production with a little more drilling.

Royalite Wells

Royalite Oil Co.'s No. 7, LSD 3, Section 13-20-3w5, is at 3,795 feet and drilling. Royalite No. 8, LSD 9, Section 11-20-3w5, offsetting New McDougall-Segur's No. 1, is drilling below 170

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Seal Beach Possibly Overestimated

Deep Sand Wells Not Holding Up as Much as Expected. So Far Offsetting Normal Decline and Killed Wells

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Aug. 27.—Deep sand completions featured development work in the Seal Beach Field during the current week and, although there were really no exceptionally large producers finished, this type of work was productive of satisfactory results and further stimulated the movement inaugurated several weeks ago to participate in this deep production. Deepening operations are more or less general over the entire field and the effect on daily production depends to a large extent upon the rapidity with which this work is carried to completion. Approximately 15 lower zone producers have been put on production during the past three weeks but field production has not shown any appreciable increase notwithstanding that the initial daily production of these wells aggregated about 25,000 bbls. The failure of field production to reflect the completion of these lower zone wells is attributed to the fact that a considerable number of producers in the upper or Selover zone were killed simultaneously with the completion of these deep wells, preparatory to being deepened. The new production secured from the lower sand therefore has offset the loss resulting from the killing of numerous Selover zone producers in addition to the normal decline in older wells.

A rather careful check indicates that these deep wells are not holding up as well as might be expected and hence field production may not attain the high level originally predicted for it. The high to be attained as a result of deepening operations is not dependent upon the completion of a few large wells but is expected to result from the completion of a fairly large number of 1,000 to 2,000-bbl. producers. There are 51 potential deep sand producers under way and it is this particular group which will shape the future of the town lot area as the flush condition will cease to exist after their completion. Additional wells will probably not exert any appreciable effect on production after that time as the gas head will have passed off before they are brought in. The 51 wells under consideration, however, included in which are 14 of the Pan American and Petroleum Securities, 8 of the Marland, 4 of the General Petroleum, 5 of the Superior and 6 belonging to George Getty, could very easily run the daily production of this field up to the projected 75,000 bbls. per day mentioned a few weeks ago if they should be completed within a relatively short space of time. With daily production hovering around 57,000 bbls. this would require the completion of only 20 deep sand wells within any 14-day period. There are 44 wells below the 5,000-foot level in the town lot area at Alamitos Heights within 200 feet of completion. According to schedule a large part of these should come into production within 15 days and for this reason it is logical to assume that the field output during the early part of September should be somewhat higher than at present. Unforeseen delays resulting from fishing jobs or mechanical difficulties may reduce this number, in which event the field production will not reflect the possible maximum.

Week's Completions

The Petroleum Securities put three wells on production in the Seal Beach Field during the week and will probably follow with several more soon. All three were recompletions in the deep sand, the largest being No. 4 Naples which came in under a natural flow doing 1,600 bbls. of clean 28.2 gravity oil daily from 5,141 feet. This well was originally completed in April of this year doing 2,500 bbls. a day in the Selover zone from 4,736 feet and was later recompleted early in July doing 495 bbls. per day after being redrilled and deepened to 4,975 feet. No. 1 Brice, another recompletion of the Petroleum Securities, was returned to production flowing 1,950 bbls. of clean 28.6 gravity oil daily from 5,039 feet. This well was first brought in during June when it registered an initial of 2,110 bbls. from the Selover zone at 4,885 feet. No. 1 Dotson, the smallest, was recompleted a few days ago flowing 560 bbls. of clean 28.8 gravity oil daily from a depth of 5,030 feet, the hole having been finished with a 6¼-inch liner carrying 250 feet of perforated. This well was first finished three weeks ago doing 490 bbls. from 4,905 feet.

The Marland's work during the week consisted of two new wells and two recompletions. The smallest was No. 3 Selover, which came in pumping 170 bbls. of 26.1 gravity oil daily which shows a cut of 5 per cent. This well was originally finished in February flowing 1,795 bbls. per day from 4,745 feet. The decline which took place subsequent to completion, however, resulted in the hole being deepened to 5,240 feet and later plugged back to 4,910 feet, from which depth it has just been recompleted. The other workover was No. 12 Selover which blew in flowing 2,560 bbls. of clean 28.2 gravity oil daily after being deepened from 4,845 feet to the lower Wahl zone at 5,340 feet. That Selover sand producers in the town lot section do not hold up is evidenced by the fact that this well was only recently finished as a 1,590-bbl. well in that zone only to be started down a short time later when production fell off to practically nothing.

The Marland's two new wells were No. 9 Selover and No. 11 Bixby, the latter being a 195-bbl. pumper from 4,440 feet. This well can hardly be listed as a completion, however, as the output is cutting approximately 35 per cent water and a correction of this trouble will probably result in a much larger output. No. 9 Selover was an exceptionally good well as it came in under a natural flow doing 1,950 bbls. of clean 28.4 gravity oil daily from 5,323 feet. George F. Getty's No. 13 Alamitos, in keeping with its number, proved a jinx as it only yielded an initial of 65 bbls. daily when put on the beam at 4,989 feet. Getty's No. 6, however, more than made up for this disappointment as it literally blew in doing 3,200 bbls. of clean 28.7 gravity oil daily from the deep zone at 5,350 feet. Five other wells on the same lease are nearing completion in the lower strata and Getty's production as a result should be boosted very substantially soon if they run according to Hoyle.

Town Lot Producer

W. E. McCaslin finished his first successful producer in the town lot area by bringing in No. 1 Burge, which started off flowing 1,470 bbls. of clean 28.8 gravity oil daily from 5,053 feet. It has declined to 825 bbls. since completion but appears to be holding up quite steadily at this rate. The General Petroleum's No. 3 Wasem, the best well finished on this lease up to the present, is holding up remarkably well and if the other deepening projects on this property duplicate the performance of No. 3 the company will get out of the red, which looked quite doubtful for some time. No. 5 on this lease came in a few days ago flowing 750 bbls. per day from 5,270 feet and this well was followed a short time later by No. 1 White-Hart which started off doing 1,750 bbls. daily from 5,360 feet. The latter project was taken over from the White-Hart Syndicate several weeks ago. California Eastern successfully finished another new producer in the town lot area, No. 1 Raymond Larsen, which registered an initial of 1,600 bbls. of clean 28.5 gravity oil daily from the 5,320-foot level. The company's No. 1 Fleming, which was brought in last week flowing 1,050 bbls. from 5,060 feet, failed to hold up and a crew has been put back for a cleanout and deepening job. E. J. Miley recompleted his No. 1 Alamitos as a 500-bbl. flowing well after redrilling and deepening it from 4,900 feet to 5,075 feet but the initial production fell off later to 260 bbls. per day and the hole will probably be carried down to the deep Wahl zone. The Dominguez Extension's No. 2 Alamitos proved a distinct disappointment at 5,003 feet and unless additional deeper drilling proves productive the well can be charged off as practically a total loss since it has only shown a maximum daily pumping of 31 bbls. up to the present. The Associated's No. 16 Hellman in the extreme eastern part of the field, passed out of the deep sand at 5,470 feet and, while the gray sand cored at 5,477 feet does not look favorable, the company is assured of fairly good production above this level.

Huntington Beach

Three new wells were put on production in the Huntington Beach Field, the largest, R. E. Ibbetson's No. 15 Hunting, a 190-bbl. pumper from 4,350 feet.

(Continued on Page 114)

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total This Week	Daily Average	Total Last Week	Daily Average	This Year to Date	Same Time Last Year
Crude oil	193,337	27,620	418,290	59,756	6,392,920	8,371,072
Fuel oil	134,539	19,220	142,862	20,409	5,180,222	3,994,713
Diesel and gas oil	.....	.....	.....	.....	1,927,501	1,969,986
Gasoline	79,878	11,411	211,484	30,212	5,467,434	4,516,881
Tops	.....	.....	.....	.....	.....	149,906
Coastwise—						
Crude oil	419,666	59,952	455,298	65,043	16,849,488	15,630,409
Fuel oil	425,110	60,730	311,670	44,524	7,804,625	6,986,491
Diesel and gas oil	26,309	3,758	.....	.....	254,319	138,480
Gasoline	427,461	61,066	297,089	42,441	6,291,454	4,754,297
Kerosene	12,500	1,786	.....	.....	118,269	144,370
Tops	.....	.....	.....	.....	104,595	476,912
Exports—						
Crude oil	57,770	8,253	.....	.....	1,702,503	2,759,363
Fuel oil	498,748	71,250	393,110	56,160	17,908,147	11,087,075
Diesel and gas oil	.....	.....	.....	.....	839,286	274,767
Gasoline	.....	.....	139,961	19,994	2,889,164	3,041,900
Tops	.....	.....	.....	.....	227,204	.....
Kerosene	.....	.....	.....	.....	1,382,830	1,770,357

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC, GULF COAST PORTS

Diesel and gas oil	.....	.....	.....	.....	505,608	1,090,988
Gasoline	80,215	11,459	78,029	11,147	1,418,705	701,996
Tops	.....	.....	.....	.....	.....	73,698
Lubricants	58,190	8,313	.....	.....	303,016	215,617
Coastwise—						
Fuel oil	69,847	9,978	126,513	18,073	3,658,021	3,379,396
Diesel and gas oil	.....	.....	.....	.....	207,012	.....
Gasoline	71,491	10,213	30,650	4,379	3,268,551	3,115,912
Kerosene	.....	.....	.....	.....	149,472	262,812
Exports—						
Fuel oil	74,382	10,626	54,980	7,854	1,690,305	2,511,840
Gasoline	74,840	10,691	.....	.....	2,021,159	1,393,389
Kerosene	2,380	740	.....	.....	567,536	1,364,868
Lubricants	.....	.....	.....	.....	9,120	26,810

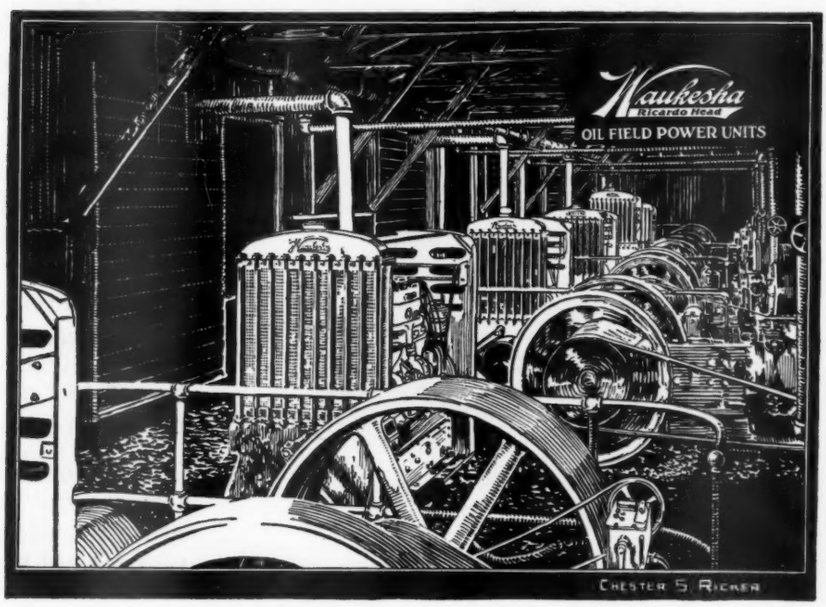
IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, Well, Location—	S-T-R	Depth	Status
Calif. Eastern, No. 1 Cypress, Potrero	27- 3-14	5,043	suspended
Associated, No. 1 Cypress, Potrero	34- 2-14	4,450	suspended
Getty, Geo. F., No. 1 Tubbs, Rivera	25- 2-12	4,850	gr. sd. drilling
Mont. Park Oil Co., No. 1 Browning, Mont. Park	26- 1-12	Rig	rigging up
Circle Oil Co., No. 1 Pomeroy, Manchester	23- 3-14	4,280	suspended
Shell, No. 1 Mission, San Fernando	4- 2-15	3,680	hd. sd. drilling
Sou. Calif. Drlg. Co., No. 1 Matteson, El Segundo	1- 3-15	4,870	plug back
Carr, O. P., No. 2 Foster, San Juan Capistrano	13- 8- 8	3,290	schist, drilling
Thomason & McCoy, No. 1 Rinz, Saugus	27- 5-16	1,580	gr. sd. drilling
Southwest Pet., No. 1 Ramsauer, Watts	4- 3-13	2,911	hd. sd. drilling
San Clemente Oil Co., No. 1 Peck, Hawthorne	20- 3-14	3,217	sd. sh. drilling
West. Oil & Ref. Co., Well No. 1, Hawthorne	29- 3-14	Rig	rigging up
White Behr, No. 1 Watson, L. A. County	21- 4-14	Rig	rigging up
Shell, No. 1 Allec, Placentia	31- 3- 9	2,561	congl., drilling
Standard, No. 1 Olive, Orange Co.	17- 4- 9	2,809	hd. sd. drilling
Son, C. A., No. 1 Pinkerton, Orange Co.	5- 5- 9	Mtl.	building rig
Standard, No. 1 Rindge, Palms	36- 1-15	Rig	in litigation
Hemet Pet. Co., No. 1 Ward, Riverside Co.	9- 5- 1	1,321	fishing

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Associated, No. 1 Smith, Kettleman Hills	12-23-18	2,042	suspended
Bolsa Chica, Well No. 1, Kettleman Hills	30-23-19	3,071	sd. sh. drilling
General Pet., No. 1 Burbank, Kettleman Hills	30-23-19	3,105	pipe bad
General Pet., No. 2 Oschener, Kettleman Hills	26-22-18	4,231	gr. sd. drilling
General Pet., No. 1 Dome, Kettleman Hills	4-24-19	2,840	hd. sd. drilling
C. C. M. O., No. 1 McGlashan, Kettleman Hills	17-24-19	4,721	cleaning out
South Coalinga, Well No. 1, Kettleman Hills	35-24-19	2,651	sd. sh. drilling
Ahlburg Gas Co., Well No. 1 Kettleman Hills	7-23-23	Rig	standing
Superior Oil Co., Well No. 1, Kettleman Hills	26-21-17	.....	grading
Milham Expltn., No. 1 Kettleman, Kings Co.	2-22-17	3,598	pipe bad
Shell, No. 2 Berlywood, Moorpark	32- 3-20	4,611	hd. sd. drilling
C. C. M. O., No. 1 Hobson, Ventura Co.	22- 3-24	6,545	sidetrack. fish
C. C. M. O., No. 1-B Hobson, Ventura Co.	16- 3-24	4,900	W. S. O. N. G.
Pan American, No. 1 State, Ventura Co.	17- 3-24	649	sd. drilling
Pan American, No. 1 U. S. Ventura Co.	17- 3-24	Mtl.	building rig
Scott Petroleum, No. 1 Surf, Ventura Co.	35- 4-24	Rig	rigging up
Continental Oil Co., No. 1 Burnham, Ventura Co.	22- 5-18	3,050	gr. sd. drilling
Standard, No. 1 Camarillo, Ventura Co.	29- 2-20	5,490	hd. sd. drilling
Standard, No. 1 Montalvo, Ventura Co.	17- 2-22	6,769	hd. sd. drilling
Petroleum Sec., No. 1 Diablo, Ventura Co.	26- 5-18	2,785	cleaning out
Parkford, E. A., No. 1 Strathern, Ventura Co.	5- 2-18	3,500	suspended
Star Petroleum, No. 1 Canet, Ventura Co.	13- 3-23	5,240	fishing
Richfield, No. 27 Piru, Ventura Co.	35- 5-18	1,902	hd. sd. drilling
Milham Expltn., No. 2 Buttonwillow, Kern Co.	8-28-23	4,662	gas well
Milham Expltn., No. 3 Buttonwillow, Kern Co.	7-29-24	4,019	cleaning out
Pacific Eastern, No. 1 Bakersfield, Kern Co.	6-30-28	4,392	testing
General Pet., No. 1 Edison, Kern Co.	5-30-29	Mtl.	building rig
Kerwin & Seal, No. 1 Edison, Kern Co.	4-30-29	Rig	rigging up
Getty, George F., No. 1 Edison, Kern Co.	22-29-29	Rig	rigging up
Mays & Valencia, No. 1 Machado, Kern Co.	31-30-28	Rig	rigging up
C. C. M. O., No. 1 Quinn, Delano	23-25-27	2,781	plug back
Sayers, R. H., No. 1 Poso, Kern Co.	7-26-18	Mtl.	building rig
Richfield, No. 1 Wreden, San Luis Obispo Co.	10-29-17	721	cemented
Shell, No. 1 Cowell, San Mateo Co.	8- 6- 5	4,260	hd. sd. drilling
Shell, No. 1 Ashton Craft, San Mateo Co.	17- 6- 5	1,990	sd. drilling
Shell, No. 1 Murphy, Petaluma	29- 5- 6	6,090	hd. sd. drilling
Shell, No .1 Ielmorini, Sonoma Co.	14- 5- 7	2,153	hd. sd. drilling
Thomas & Hammill, Well No. 1 Alameda Co.	16- 2- 3	1,201	hd. sd. drilling
Elliott & Clarke, No. 1 Marcos, Santa Barbara Co.	34- 7-29	1,053	hd. sd. drilling
Becker, Geo. F., No. 1 Summerland, Santa Barbara	33- 4-25	3,074	sd. sh. drilling
Birch Oil Co., No. 1 Porterville, Tulare Co.	13-20-26	200	sd. drilling

Waukesha Equipped Air Lift Plant at Seminole, Okla.



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Over a Year on Gas Lift

Some of the first Gas Lift installations at Garber and Seminole, Oklahoma, were Waukesha equipped. Their reliability, low upkeep cost, ability to run on waste gas, use little water, and their moderate price account for the fact that after more than a year's test these Waukesha Oil Field Power Units have become a standard source of power for driving two-stage compressors used in gas lift service.

Waukesha Oil Field Power Units for Air Lift stations are built in three sizes—75-100-125 horse power. They are also built in sizes down to 30 H. P. for driving electric generators; water, mud and oil pumps; and both rotary and cable tool drilling rigs. There is an engine for every purpose where power is required in the production of petroleum. Have you written for your copy of "Gas Lift, Its Theory and Practice," a reference book which we will be glad to send to interested parties.

P-757-L

OIL INDUSTRY EQUIPMENT DIVISION

WAUKESHA MOTOR COMPANY

Waukesha Wisconsin

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8 W. 40th St.	*V. L. Phillips Co.*	*Wilson Machy. Co.*	*C. F. Camp Co.*	*Portable Rotary Rig Co.*	*C. A. Watts*

Exclusive Builders of Heavy Duty Gasoline Engines for Over Twenty Years

"OILWELL" ESTD. 1862. TRADE MARK. (REGISTERED)

THE "OLD" AND THE
THE "OILWELL" HILD
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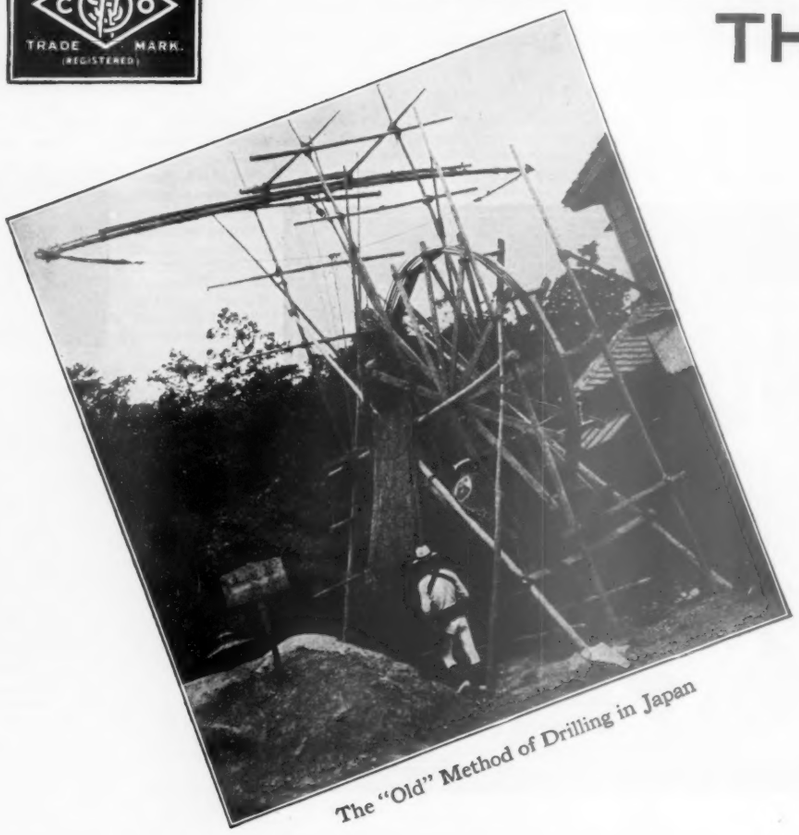

The "Old" Method of Drilling in Japan

2,900 feet in 18 days were drilled by the Nippon Oil Co. with an "OILWELL" Hild Differential Drive.

The well, shown in the photograph to the right, is located near Nishiyama.

Drilling started June 13, 1926 and on July 3, 1926 the depth was 2,900 feet. Two days during this time were holidays, leaving a total of 18 days drilling time.

And this record was accomplished by a Japanese crew who had never seen one of these outfits before and were, therefore, proceeding cautiously not trying to break records.

The superiority of the "OILWELL" Hild Differential Drive for rotary drilling is rapidly being proven throughout the oil fields of the world.

The Recording Instrument Board

The Japanese characters on the blackboard represent the progress made in one day, formations drilled through, and recording meter readings.

The Chanselor-Canfield Midway Oil Co. completed ten deep wells with an "OILWELL" Hild Differential Drive in the California Field in a period of thirty months, *and on the latest three wells there were no twist-offs nor fishing jobs of any kind.* Moreover the equipment was still in excellent condition. Superintendent Perry states that the gears were inspected upon completion of the ninth well and found to be unworn, also that during the entire thirty months of continuous running the *only* repair or replacement of any kind was one new sprocket chain, all of the other equipment being the same which was put into use on the original well in 1923.

The "OILWELL" Hild Differential
Oil Company, near

Orders for "OILWELL" Hild Differential
other parts of the world, notably—

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OIL WELL S

WORLD'S OLDEST AND LARGEST MANUFACTURERS OF OIL FIELD

"NEW" IN JAPAN
DIFFERENTIAL DRIVE
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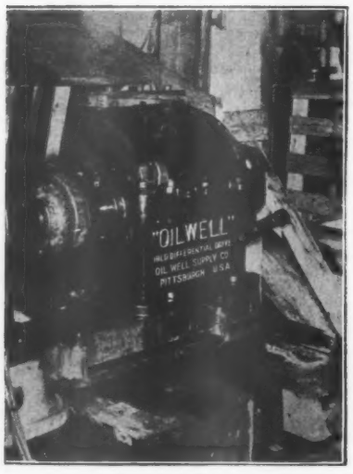
With this device the bit is automatically fed and automatically retrieved or lifted upon suddenly encountering hard formations.

Additional advantages are:--

1. Faster drilling.
2. Cheaper drilling---less wear and tear on the drilling equipment, resulting in lower maintenance costs.
3. Straight hole.
4. Deeper drilling range because of better protection for the drilling equipment.
5. Uniform feed regulation for coring.

For further information, inquire at any of our 100 Branches

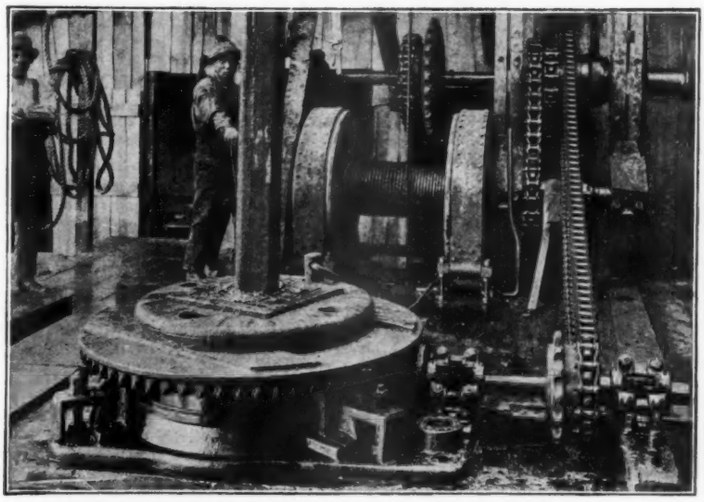
The "New" Method of Drilling in Japan



Drive used by the Nippon Nishiyama, Japan

Drives have also been received from Burma, India, Russia and Roumania

One of the largest companies operating in the United States purchased an "OILWELL" Hild Differential Drive in 1924, and since drilling 12 wells with it, has purchased 8 more outfits of the same kind, making a total of 9 now in use.



The "OILWELL" Hild Differential Drive can be used with any Standard Hoist or Draw Works

UPPLY CO.

EQUIPMENT BRANCH STORES IN ALL OIL FIELDS

Above Average Southeast Ohio Wells

Hardy Township, Holmes County, Has One Making 150 Bbls. Initial, One 60 and One 50. Clay County Failing

By D. S. Wakenight
Staff Correspondent, Eastern Fields

PITTSBURGH, Pa., Aug. 29.—Since the eastern fields were last reviewed, a few better wells were completed than for several weeks, but reports from all districts show fewer completions and less new production. The refineries in Pittsburgh and vicinity are taking the usual amount of crude and all running at full capacity. Most of them are running on Pennsylvania grade.

Best Producers for the Week

The southeast Ohio fields again had a monopoly of the good producers completed in the eastern fields. The best is the East Ohio Gas Co.'s No. 3 on the Harvey Bell farm in Lot 2, Hardy Township, Holmes County. The first 24 hours after it was drilled through and shot in the Clinton sand it produced 150 bbls.

In Section 25, Hardy Township, Holmes County, the Empire Gas & Fuel Co. completed and shot in the Clinton sand a test on the Degler heirs' farm, and it produced 50 bbls. the first 24 hours. In Lot 38, same township, the East Ohio Gas Co. completed a second test on the Ella J. Howell farm. It produced 60 bbls. the first 24 hours after completed and shot in the Clinton sand. In Section 20, Jackson Township, Knox County, Sterl C. Brown got a very light pumper in the Berea grit at a test on the W. H. Jones farm.

In Section 18, Perry Township, Licking County, the Hope Construction & Refining Co. has completed and shot in the Clinton sand a test on the C. W. Somerville farm. It produced 25 bbls. the first 24 hours after shot. In Lot 24, Mary Ann Township, McClay & Co. completed in the Berea grit a test on the William Stricker farm. It produced 5 bbls. the first 24 hours.

In Lot 6, Mary Ann Township, the Ohio Fuel Supply Co. drilled a test on the Floyd Livingston farm through the Berea grit, at a depth of 630 feet good for 12 bbls. a day. On the west side of Section 19, Sutton Township, Meigs County, Charles H. Vaughn and others have a 3-bbl. pumper in the Berea grit at a second test on the Floyd Wessel farm. The total depth is 1,820 feet.

In the southwest quarter of Section 30, Orange Township, Carroll County, the Leesville Oil & Gas Co. completed Nos. 1, 2, 3, and 4 on the Thomas Tripp farm. No. 1 is good for 5 bbls.; No. 2, dry; No. 3, 5 bbls.; and No. 4, 8 bbls. The producers got their production in the Berea grit at about 1,150 feet.

Muskingum County

In Mechanic Township, Section 2, Muskingum County, the Empire Oil & Gas Co.'s test on the John Bucklew farm is a duster. In Monroe Township, Coshocton County, the Empire Gas & Fuel Co.'s test on the C. M. Parks farm is a gasser. In Section 1, the East Ohio Gas Co. got a gasser at a test on the M. J. Nyhart farm. In Sections 2 and 18, the Ohio Oil Co. and the Logan Gas Co. are due in the Clinton sand at tests on the John Kasner and Oliver Borden farms.

In Sections 2 and 6, Athens Township, W. W. and A. T. Wehrle have gassers in the Berea grit at tests on the Joseph A. Mulligan and T. W. Gold farms. In Lot 24, the Gross & Frebault Co. has a gasser at No. 4 on the B. Irwin farm. In Section 30, Marion Township, Morgan County, the Ohio Fuel Gas Co. has a light gasser in the Berea grit on the A. M. Hummell farm. In section 22, Washington district, Hocking County, the Theodora Oil & Gas Co.'s test on the B. Mills farm is in the sand and showing for a light pumper. In Hopewell Township, Section 1, the Pure Oil Co.'s test on the J. W. Francis farm is a 5-bbl. pumper.

In Section 25, same township, the Empire Gas & Fuel Co. completed and shot in the Clinton sand a second test on the Degler heirs' farm. It produced 50 bbls. the first 24 hours. In Section 18, Perry Township, Licking County, the Hope Construction & Refining Co.'s test on the S. W. Somerville farm produced 25 bbls. the first 24 hours after shot in the Clinton sand.

Athens County

In Section 5, Alexander Township, Athens County, W. W. and A. T. Wehrle completed a light gasser in the Berea grit at a test on the T. W. Gold farm. In Lot 11, Monroe Township, Holmes County, the East Ohio Gas Co.'s test on the S. R. Williams farm is a gasser in the Clinton sand good for 1,500,000 feet.

In Lot 5, Section 14, Chatham Township, Medina County, E. R. Edson, Son & Co. completed No. 25 on the William P. Wentz farm. It is a very light pumper. In the northeast quarter of Section 35, same county, the Empire Gas & Fuel Gas Co. has completed to a total depth of 3,060 feet a test on J. N. Ganyard farm and it is a duster. In the northwest quarter of Section 31, Strongsville Township, Cuyahoga County, Ditton & McFredericks have drilled a test on the Peck Brothers farm to a depth of 3,000 feet, and it is a gasser good for 1,500,000 feet. In the Pomeroy district, Salisbury Township, Meigs County, the Ohio Fuel Supply Co. has drilled a test on the W. E. Peoples farm into the salt sand. It is a gasser, estimated to be good for 250,000 feet. It is undecided as to drilling it deeper at this time. In Section 31, Sutton Township, Koehler & Miller have started to drill a second test on the Dana Houdschelt farm. In the same township, the Brewer Farm Oil Co. is drilling No. 3 on the F. and N. Brewer farm. In Lot 7, Hanover Township, Licking County, the Pure Oil Co. is drilling for a producer in the Clinton sand at a test on the H. C. Priest farm.

In Section 6, Washington Township, Belmont County, the Natural Gas Co. of West Virginia has a gasser in the top of the Big Lime formation at No. 1 on the Doctor Clark farm. In Wayne Township, the Ohio Fuel Supply Co. is drilling a test on the R. F. Carpenter farm.

Washington County

In Newport Township, Washington County, O. S. Reckard & Co. have a 15-bbl. pumper in the Keener sand at No. 14 on the F. F. Dana farm. In the same Township, W. J. Todd and others are drilling a test on the George Ferguson farm. E. A. Metcalf has a very light pumper at No. 11 on the L. Efferson farm. The Miracle Oil Co. has a 5-bbl. pumper on the Lewis Kline farm.

In Section 14, Monroe Township, Perry County, Marshall & Marshall completed in the Berea grit No. 33 on the Donahue farm. It is a duster and has been abandoned. In Section 8, Franklin Township, Licking County, the Austin Orr farm test of the Ohio Fuel Supply Co. is a 5-bbl. pumper in the Berea grit.

In the southwest quarter of Section 22, Washington Township, Hocking County, the Ilisboro Oil & Gas Co.'s test on the B. Y. Mills farm is a duster in the Clinton sand at a total depth of 2,878 feet.

The Ohio Oil Co.'s No. 5 on the Olive Smitheiser farm in Lot 7, Monroe Township, Holmes County, is a light pumper good for 4 or 5 bbls. a day in the Clinton sand.

Noble County

In the west half of Section 32, Stock Township, Noble County, Addis, Flake and others have completed a test on the Frank Schwallie farm and it is a 3-bbl. pumper in the Keener sand.

In Lot 291, Sutton Township, Meigs County, P. L. Clifton & Co. have completed in the Berea grit a test on the Charles E. Yost farm. They got a little gas and no oil.

West Virginia

On Sugar Camp Run of Reedy Creek, Reedy district, Roane County, the Heck Oil Co. has completed in the Berea grit No. 10 on the J. W. Conley farm. It is showing for a 15-bbl. pumper, natural. The location is 700 feet northeast of No. 4 on the same farm.

In Mooresville voting precinct, Clay district, Monongalia County, the Dunn Mar Oil & Gas Co. has started to drill from the Big Injun sand to the lower sands, No. 4 on the James M. Tennant farm.

Mingo County

On the waters of Slick Rock Branch of Breeden Creek, Harvey district, Mingo County, the Old County Oil & Gas Co. has drilled No. 15 on the Henry Closterman estate into the Maxon sand at 1,615 feet, and it is showing for a 20 or 30-bbl. producer. This company, which took over the A. W. McGrew properties, is shaving very fair success in getting fair producers. It is about the only company that is increasing its production at this time.

Calhoun County

On Mill Stone Run, Lee district, Calhoun County, H. J. Simmons has completed in the Big Injun sand a test on the Alonza Powell farm. It is good for 5 bbls. a day. In Grant district, Pleasants County, Ira Connolly has completed a test on the T. J. Heckel farm. It is a duster in the Berea grit.

In the Big Run Field, Williams district, Wood County, the Alprey Oil Co. has a show for a very light pumper at No. 6 on the George W. Parry farm. On Plum run, same district, D. B. & J. W. Reed have completed a test on the C. S. Reed farm, dry in the first Cow Run sand.

Eight miles west of Pine Grove, Greene district, Wetzel County, Carr Brothers' test on the Babe Morgan farm is a gasser in the Big Injun sand. In Jefferson district, Pleasants County, P. A. Nee is drilling on the A. G. Ingram farm. In Church district, Wetzel County, the Delmar Oil Co. is due in the sand at a test on the Anna Palmer farm. The Pittsbugh & West Virginia Gas Co. is drilling a test on the J. C. Hoge farm.

Clay County

All late completions in the Big Injun sand development in Henry district, Roane County, point to the approach of the end of the producing formation. The recent completions have come in very light pumpers or dry holes.

In Henry district, the United Fuel Gas Co. has completed a test on the W. S. and Sarah E. Pierson farm. It is a light gasser, located 2,000 feet south of the South Penn Oil Co.'s test on the Virginia Bell farm. One-half mile west, the United Fuel Gas Co. has completed in the Big Injun sand a second test on the J. M. Gross farm. It is a gasser good for 500,000 feet. On Robinson Fork, McClelland district, Doddridge County, the Elkhorn Oil & Gas Co. has the rig completed for a test on the P. P. Chipps farm.

In the Big Injun sand development in

(Continued on Page 72)

GOOD SHALLOW SAND COMPLETIONS IN ILLINOIS AND INDIANA FIELDS

By Whit
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Aug. 29.—In the Central West Field, comprising the Lima Field, Central Ohio, Indiana and Illinois, there were only 18 completions reported from the four divisions of which 15 were producers with an initial production of 514 bbls., 1 dry hole and 2 gas wells. The wells average exceptionally good for old territory, with slightly over 34 barrels to the well. This is the best average for a long period, combining the four fields, and were conditions right and the price of crude slightly higher a large amount of drilling would be done before the close of the year.

About the only activity displayed in new work is in the Central Ohio area where the gas companies are looking for a greater supply of natural gas to feed the many gas lines running from the field to cities and towns over Ohio. There is a little danger of a shortage in the gas supply the coming winter as numerous new productive gas areas have been opened and extensions are being made to the suburban sections of many of the cities and small towns are being looked after by the gas companies. Genoa, Oak Harbor, Port Clinton and numerous towns in northwestern Ohio are now being piped for natural gas and were there not a sufficient supply these additional connections would not be made. Many dusters are encountered in the drilling for new gas territory and the deep sand wells are expensive, especially when the drill must go to the Clinton formation from whence the gas in quantities is found, ranging in depth from 2,500 to 3,500 feet.

Good Well in Illinois

One of the best wells of the week was encountered in the shallow Bridgeport sand, in Dennison Township, Lawrence County Illinois, in a test on the Wesley Clark farm, Section 2, for an initial production of 120 bbls., from a depth of 872 feet.

Indiana's best completion was a 70-bbl. producer in a wildcat on the J. E. Zimmerman farm, Section 1, Washington Townsite, Gibson County, which was also found at a shallow depth of 834 feet.

The bringing in of another 45-bbl. initial producer on the Kuckerman farm, Section 29, Washington Township, Auglaize County, Ohio, near New Bremen, in the Lima Field, indicates that there are still spots in the Trenton Rock well worth the drilling. This makes the second well of that caliber during the month on the same lease. A 20-bbl. natural producer was brought in on the F. J. Sterns farm, Section 18, Bloom Township, Wood County, at 243 feet in the Trenton Rock at a total depth of 1,432 feet, and in old territory drilled back in the latter eighties, being the seventeenth well on the lease. Many old wells are being pulled out and abandoned in the Lima Field and the material will be utilized for the drilling of new wells. A wildcat drilling on Catawba Island, east of Port Clinton, in the eastern end of the old Lima Field, showed a nice volume of gas at a shallow depth of 500 feet and will encourage the drilling of other wells if the present test proves to have any staying qualities, as it will make a very cheap fuel for the residents of the Island. There is some talk of putting down a test for gas east of Catawba Island, at Lakeside, the big summer re-

(Continued on Page 72)

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Ohio and Owsley Lead Kentucky

Wells Making 340, 275 and 100 Bbls. in the Ambrose Pool. Allen County Has 200-Bbl. Completion

By Whit
Staff Correspondent, Kentucky-Tennessee

BOWLING GREEN, Ky., Aug. 27.—While Tennessee failed to record any completion during the past several days, the Kentucky area, especially in the western portion of the State, came to the front with some excellent producers, especially Ohio County, with Nos. 4 and 5 on the Fannie Lake 100 acres in the Ambrose Pool, with initial production of 340 and 275 bbls., respectively; also a 100-bbl. producer in No. 12 on the Mary J. Elmore farm, same pool. Allen County also reported a well of more than passing interest in a second test on a 112-acre lease, recently purchased out the big General Woods 2,700-acre ranch, that had an initial production of 200 bbls., after the first well on the lease being a dry hole. Other wells over the entire producing area of Kentucky were either light pumpers, dry holes or light gas wells.

Possibly no other section of Kentucky is attracting as much interest as is Ohio County, where the daily output of crude is making rapid strides. The Tri-County Field, comprising Hancock, Ohio and Daviess Counties, for June produced, according to state reports, 113,146.60 bbls., while July's production is given as 134,288.72 bbls., a gain for the month of July of 21,142.12 bbls. During July the production from Ohio County amounted to 128,234.47 bbls; Daviess County, 4,429.19 bbls.; and Hancock County, 1,625.06 bbls.

The recently opened rich pool near Island City, in Owsley County, in the eastern division, failed to report any new wells for the week, but at least three wells in that particular area are about ready to reach a depth where the pay should be found. The western portion of the Blue Grass State is attracting oil men from the eastern part on account of the good wells that are being found in the Tri-County Field of the western division.

Geological Maps

Dr. Willard Rouse Jillson, state geologise of Kentucky, has just issued a new geological map for Ohio County. This map was prepared under the direction of Doctor Jillson by E. S. Perry.

The Ohio County map is an areal and structural geological map showing oil and gas development correct up to July 1, 1927. This map depicts the continuance of the Rough River fault zone, which bisects the county north of Hartford. It also shows, extending southeastward from Pellville, in Hancock County, a continuance of oil and gas development culminating in the large and productive Weller (known as Ambrose) Pool, 8 miles north of Hartford.

The bureau, at the same time, completed a geological map of Owsley County in eastern Kentucky. Speaking of these maps, Doctor Jillson said: "Owsley County in eastern Kentucky and Ohio County in western Kentucky are the two most rapidly developing oil and gas territories in Kentucky. The focus of attention of oil and gas operators is on these districts, both of which are producing wells ranging from 25 to 250 bbls., and are adequately served by pipe lines. The principal part of Kentucky's new oil production in 1927 will be from Ohio and Owsley Counties in the Weller and Island Creek Pools. The availability of these two new geological maps will aid very materially the development of this industry."

Constructing Pump Station

The Illinois Pipe Line Co. has a large force of men at work on the construction of a large pumping station at Taffey, in Ohio County, to take care for the rapidly growing production in the Tri-County Field. Foundation for this big station is being put in preparatory to the construction of the necessary buildings and the installment of machinery. This new addition was necessary to handle the increased production in the Ambrose Pool and its extensions, which are growing larger from day to day, although narrow dry streaks are encountered between producing properties, as is the case in most all producing areas of the State, wherever it may be.

Week's Work

A summary of the week's work in the Kentucky Field show 38 completions, 21 producers with an initial production of 1,062 bbls., 16 dry holes and 1 gas well. Compared with the previous week, there were 7 less completions, 5 less producers, 376 bbls. more production, 2 less dry holes and the same number of gas wells. The wells were distributed by counties and districts as follows:

County—	Oil Comp.	Wells	Prod.	Dry	Gas
Ohio	9	7	787	2	0
Barren	11	6	29	4	1
Allen	4	1	200	3	0
Wayne	4	1	3	3	0
Estill	3	2	3	1	0
Daviess	2	1	18	1	0
Lee	2	2	12	0	0
Clinton	2	0	0	2	0
Johnson-Magoffin	1	1	10	0	0
Total	38	21	1,062	16	1
Last week	45	26	686	18	1
Difference	7	5	376	2	0

Western Kentucky

The western division of Kentucky had a fairly good week, there being 28 more completions, 15 more producers, 1,034 bbls. more production, 12 more dry holes and 1 more gas well than the eastern district of the State.

The greater number of new wells is credited to the Glasgow Field of Barren County, while the production of the county was very small from the new wells, only one doing 20 bbls. initial. Ohio County furnished the big producers as did Allen County in the new General Wood Pool, near the Allen-Barren County line, some 13 miles northeast of Scottsville and almost due east of Bowling Green.

Allen County

Much interest is seen in the new producing area found in Allen County, as little inducement was held for operators anywhere in the borders of what was a few years ago one of the great shallow fields of the country, and the new find is bound to encourage a more active drilling campaign in the northeast part of the county.

The Mid-Southern Oil Co. of New York City and Bowling Green, Ky., leased the 2,700-acre farm of Gen. E. H. Wood in northeastern Allen County, Kentucky, in the early part of 1926, at which time there had been five tests made on the farm, drilled during the past four or five years. These tests had showed one gasser and four light wells. This company started operations at once after securing the lease and drilled seven wells which ranged from 2 to 40 bbls. initial production. With 600 bbls. in storage, it then shut down operations until June, 1927, at which time it had secured pipeline connections from the Illinois Pipe Line Co. Drilling operations were then resumed and No. 8 well was brought in, making 45 bbls. from the third sand, which is about 80 feet below the Devonian black shale, there being three sands which have proved productive in this section. The first sand is about 14 feet under the shale, the second running around 50 feet under the shale, and the third sand coming in at about 80 feet under. The combined thickness of these three sands is around 50 feet. No. 9 being dry, No. 10 was started immediately, which came in making 250 bbls. natural from the first sand, 15 feet under the shale, and was deepened one week later to the second sand, 44 feet under the shale, giving an initial production of 360 bbls. per day. After pumping this well day and night for seven weeks, it was still making 60 bbls. per day. No. 11 was completed a short time after this to the second sand with an initial production of 200 bbls., making some salt water, which was easily handled. After two weeks' pumping this well was deepened to the third sand, 80 feet below the shale, which gave another 25 bbls. Nos. 12 and 13 were completed as dry holes while trying to find the trend of the pool. No. 14 is now drilling.

One hundred and twelve acres of this big lease was sold to S. W. Lowman and associates in July, 1927, for $6,000 cash and $4,000 in oil. Their first test was a dry hole. Their second test was commenced at once and completed in the first, second and third sands as a 200-bbl. producer, making some water, which the pump has taken care of. No. 3 is now drilling and will be completed within a few days, while another machine will be moved to this 112-acre lease within the coming week. The depth of the above wells range from 250 to 350 feet, the greater number being less than 300 feet in depth. The amount of casing used in this section runs from 40 to 100 feet, 6¼-inch only being used. The contract per foot for the drilling is low and takes but a few days to complete a well. A certain percentage of dry holes must be expected in this section, but they are however valuable in their own way by giving information as to future locations, and as the cost of either a well or dry hole is small they increase the cost of the production but little.

This new pool lies between the old Gainesville Pool in Allen County and the Button Pool, drilled some years ago, in Barren County; Barren County being the boundary line, along the Barren River for a large portion of the way around. This has been the first pool of any importance opened in Allen County for some length of time, there being little work of this kind going on in this county for the past few years. It shows that there is nice production to be had for the drilling in many parts of Allen and Barren Counties if the operators endeavor to find it.

Ohio County

Drilling operations have been slow for the past several days in the Ohio County Field, due to the determination of many of the operators to shut down until there is an improvement in the price of crude, but regardless of this some mighty fine producers have been brought in. The week shows nine completions; two were dry and seven were producers with an initial production of 787 bbls., which is productive enough to encourage continued operations, even at prevailing prices of crude.

A wildcat now in the sand is attracting considerable attention at this time and is at least a mile in advance of production and making a good showing. It is being drilled by Daily & Loman, Cleveland, Ohio, operators, on the O. Ezell 65 acres, something over a mile west of the Leeper Oil Co.'s production on the E. Ford farm, and to the northwest of the good well found by Daugherty and others on the Corn Wells 132 acres, which had an initial of 250 bbls. at 667 feet, and to the northwest of the big wells in the Ambrose Pool. It looks very much as though it will mean another extension to this rich pool, opened by the Ohio Oil Co. some months ago and shortly after the big wells of James C. Ellis on the J. R. Weller 110 acres brought the pool to a point where the biggest production in Kentucky was being found. What the Ezell well will do remains to be seen; anyway, it is reported as making a showing for a commercial producer which means much for the territory to the northwest of the Ambrose Pool.

In the Ambrose Pool, the Wood Oil Co.'s No. 12 well, 200 feet from the north line and 620 from the west line of the Mary J. Elmore 100-acre farm, had an initial production of 100 bbls.

To the north of the Weller farm, and in the same direction from the heart of the Ambrose Pool, the Creek Drilling Co. brought in two large producers on the Fannie Lake 100-acre farm, after bringing in three dry holes before a producer was found. No. 4 well, 165 feet from the south line and 165 from the west line of this farm, showed a first 24 hours' gauge of 340 bbls.; and No. 5 well, 175 feet from the south line and 515 from the west line of the same farm, produced an initial of 275 bbls., which to some extent shows the trend of the Ambrose Pool and is really to the northwest of other big wells in the pool. No. 6 is now nearing pay sand on the same farm.

The Ohio Oil Co.'s No. 9 on the James C. Ellis farm, east of the Weller farm, is reported at 40 bbls. the first 24 hours' pumping. No. 10, same farm, is drilling.

Leeper Oil Co.'s No. 3 on the E. Ford, adjoining the Sinnett farm, north edge of the Ambrose Pool and 500 feet from the south line and 650 from the west line of the farm, pumped 10 bbls. initial.

George Engle's No. 3 on the L. Trodgen 90 acres, southwest of the Ambrose Pool and south of Union Grove Church, is reported as good for 2 bbls. Engle and others are drilling a test on the E. L. Chapman 80-acres, directly south of the same church.

D. J. White's No. 1 on the E. Bickett farm is reported a dry hole, while in the Midkiff Pool, northeast of the Ambrose Pool, the White Plains Oil & Gas Co. struck a dry hole at No. 2 well on the Ivo Howard 214-acre farm at 750 feet. Same company's No. 6 on the Joe Bob Ellis farm at Ellis Station is reported showing for 20 bbls.

The Ohio Oil Co. is drilling Nos. 2, 3 and 4 on the D. A. Gray 80 acres between its Rodney Taylor lease and the Union Grove Church, west of the Ambrose Pool. No. 1 on this farm showed an initial of 150 bbls. at 678 feet.

Wood Oil Co. is drilling Nos. 13 and 14 on the Mary J. Elmore 100-acre farm in the Ambrose Pool. Daugherty and others are drilling No. 2 on the Cora Wells 132 acres, and No. 1 on the east 41 acres of the E. G. Owen 82-acre farm.

James C. Ellis is drilling No. 1 on the Mt. Moriah Church lot, east of his big production on the Weller farm; also drilling No. 1 on the Ada Keith farm, between the Ambrose Pool and Hartford, the county seat of Ohio County.

Bolling and others are drilling a wildcat west and a little north of Union Grove Church west of the Ambrose Pool and its outcome will be watched with much interest.

Barren County

The best of the late completions from the Glasgow Field of Barren County is Hunt, Leach & Mitchell's No. 22 on the Vance G. Taylor farm in the Lecta Pool, with an initial of 20 bbls.

In the Lecta Pool, the Samson Oil Co.'s No. 1 Jolly farm and No. 2 on the Howard farm are 2-bbl. pumpers. Pedigo & Payne have one of the same kind at No. 4 on the S. Browning farm, and W. L. Baird's No. 2 Johnson farm is a 2-bbl. pumper. Tyler, Jones & Breeding's No.

(Continued on Page 111)

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MEN KNOWN IN OILDOM

James Hutcheson

James Hutcheson, vice president and general manager of the Rio Bravo Oil Company, of Houston, Tex., has been identified with the Southern Pacific Railroad interests for over 20 years.

He was born at Houston in 1883, and after several youthful ventures at work, he journey to the Pacific Coast, where he entered the employ of the Kern Trading & Oil Company, which was at that time the fuel department of the Southern Pacific in California.

In 1908 he was transferred to the Associated Oil Company, another subsidiary of the railroad, and he moved to Coalinga, Calif., where he remained until 1919, when he was placed in charge of the Associated Oil Company's operations in North Texas.

In the California Fields Mr. Hutcheson's experience embraced all kinds of field work, until, due to poor health, he was changed to the office end of the buisness.

When John R. Suman resigned to become a director of the Humble Oil & Refining Company last January, Mr. Hutcheson was named his successor in the position he now holds.

PERSONAL PARAGRAPHS

W. A. Montcrief, vice president of the Marland Oil Company of Texas, is spending his vacation in Colorado.

* * *

V. L. Ehrenclou, advertising manager of the Union Oil Company, has return to Los Angeles from a honeymoon.

* * *

W. R. Daugherty. Oil City, chief auditor for the Southern Group of Pipe Lines, was a Pittsburgh, Pa., visitor last week.

* * *

R. A. Crawford, vice president of the Lone Star Gas Company, of Dallas, Tex., is visiting in Oil City and Pittsburgh, Pa.

* * *

W. H. Holmes, independent Panhandle producer, has returned to Amarillo, Tex., following a month's vacation in California.

* * *

John H. Brennan, counsel for the Barnsdall Corporation, is in Los Angeles on one of his regular periodical visits from Tulsa.

* * *

John Fertig, vice president and general manager, and R. E. Wertz, superintendent of operations for the Producers & Refiners Corporation, are in Canada on an inspection trip of the oil fields of Alberta and Montana.

W. E. Perdew, of Wichita, Kans., was a Tulsa Okla., visitor during the past week.

* * *

Jim Morgan, sales manager for the Smith Separator Company, Tulsa, Okla., is making a tour through Louisiana and Texas.

* * *

J. C. Mullins of the sales department of the Thanscontinental Oil Company, Tulsa, Okla., is in Fort Worth, Tex., on company business.

* * *

David Logan, consulting geologist, Okmulgee, Okla., is in West Texas on a business mission and was recently in Fort Worth, Tex.

* * *

John P. West, head of the land department in the Panhandle for the Prairie Oil & Gas Company, is spending his vacation in New Mexico.

* * *

F. E. Wood, petroleum engineer in the employ of the Midwest Refining Company at Casper, Wyo., spent his vacation in the Big Horn Mountains.

* * *

M. M. (Silas) Bates, chief of the Humble Oil & Refining Company's scouting department in North Texas, has returned to Wichita Falls from Denver.

* * *

G. R. Nicholson, Empire Gas & Fuel Company, Panhandle scout and chairman of the Panhandle Scouts Club, is spending his vacation in Michigan.

* * *

J. W. Leonard, of Washington, Pa., and his son, James Leonard, of Billings, Mont., both of the Linco Petroleum Company, were in Casper, Wyo., recently.

* * *

J. D. Aber, secretary to R. A. Crawford, vice president of the Lone Star Gas Company, of Dallas, Tex., has returned to his office after a vacation spent in Colorado.

* * *

Capt. W. R. Finney, engineer in charge of the natural gas department of the Midwest Refining Company, has returned to Casper, Wyo., from a trip to Havre, Mont.

* * *

Finley M. Scruggs has been made chief scout of the Humble Oil & Refining Company with Houston, Tex., headquarters. He was formerly located in the Panhandle fields.

* * *

Herman Stabler, of Washington, D. C., chief of the mineral leasing division of the United States Geological Survey, is making an inspection trip through the Rocky Mountain region.

* * *

F. O. Prior, head of the electrical department of the Midwest Refining Company, has returned to Casper, Wyo., from a trip of 10 days to Bartlesville and Tulsa, Okla., and Amarillo, Tex.

* * *

Paul S. Ache, president of the Reiter-Foster Corporation, and V. D. Sidney, superintendent of operations for the company on Hiawatha Dome, are visiting the company's operations in Texas.

* * *

T. R. Jones, president of the Oklahoma Contracting Company, of Dallas, Tex., has returned from a vacation spent in California. Mrs. Jones and their two daughters accompanied him on the trip.

* * *

John J. Flanagan, superintendent of operations of the northern division in the Rocky Mountain region for the Continental Oil Company, is looking after drilling operations of the company at Walden, Ohio.

* * *

W. C. Shutts, gas engineer in the mineral leasing division of the United States Geological Survey, at Midwest, Wyo., has left the service to accept employment with the Marland Oil Company at Amarillo, Tex.

* * *

Charles D. Wagner, vice president in charge of sales of the Emsco Derrick & Equipment Company, has gone to the Santa Cruz Islands for a fishing trip in company with a party of prominent Los Angeles business men.

* * *

L. Fitzpatrick of Findlay, Ohio, assistant superintendent of operations for Ohio Oil Company, visited in Great Falls, Mont., following a visit to the company's holdings in Kevin-Sunburst Field. He was accompanied by John McFadyen of Casper, Wyo., superintendent of operations in the Rocky Mountain district.

C. Max Bauer, chief geologist of the Midwest Exploration Company, has been made the business representative of the Panhandle Geological Society on the council of the American Association of Petroleum Geologists.

* * *

D. W. Lewis, of Midwest, Wyo., superintendent of production for the Midwest Refining Company in the Salt Creek Field, has secured a leave of absence of six months and with Mrs. Lewis has left for an automobile trip to California.

* * *

E. Foster Bain, secretary of the American Institute of Mining and Metallurgical Engineers and formerly director of the United States Bureau of Mines, spent a few days in Los Angeles, where he addressed the recent meeting of that organiaztion.

* * *

John Patton, vice president of the Cities Service Company, was in Los Angeles last week, having motored from New York. Due to several stops made en route, Mr. Patton only remained a short time in California before taking the train back to Gotham.

* * *

James S. O'Brien, of Pittsburgh, Pa., accountant with the Southwest Pennsylvania Pipe Line Company, after a two years' leave of absence, spent at St. Petersburg, Fla., has returned to Pittsburgh, much improved in health. Mrs. O'Brien accompanied him.

* * *

Guy Craig, former Wyoming and Mid-Continent operator and for several years active in the development of Northern Montana, has been elected president of Genou Oil & Gas Company. C. M. McCutcheon is vice president and J. W. Speer, secretary-treasurer.

* * *

L. B. Little, head of the producing department of the Standard Oil Company of California in the Bakersfield district and for 19 years associated with the Standard in Kern County, has been promoted to manager of operations in the Southern California district.

* * *

D. E. O'Brien has left San Antonio, Tex., for Colombia for the Leonard Oil Company of Washington, Pa. Mr. O'Brien has long been identified with the oil business in the San Antonio territory and for years has been associated with the Leonard Oil Company. He expects to reach Baranquilla about September 3.

* * *

E. DeGolyer, president of the Amerada Petroleum Corporation, was in Los Angeles this week while making the rounds of the various chapters of the American Institute of Mining and Metallurgical Engineers of which he is president. Mr. DeGolyer only remained a few days in Los Angeles as his itinerary will keep him moving in order to make connections elsewhere.

* * *

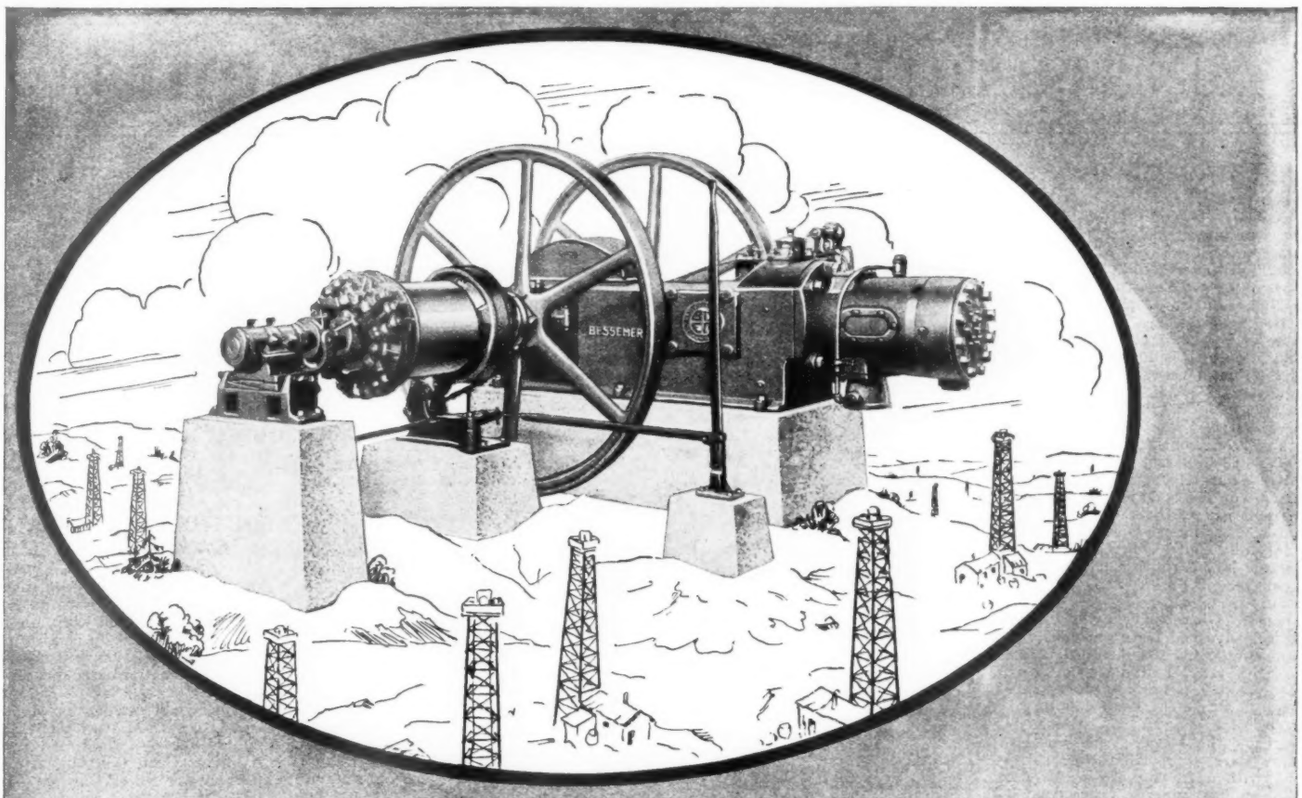
R. V. Hanrahan, president and general manager of the Humble Pipe Line Company, with Houston, Tex., headquarters, has returned from a vacation spent on the Pacific Coast with his family. Mr. Hanrahan is one of the youngest and most efficient pipe line executives in the country. Under his direction the lines of the Humble company have been extended into every field in Texas, with trunk lines to the Gulf of Mexico.

* * *

W. T. Cushing, representing the Dearborn Chemical Company of Chicago in Texas and Louisiana, is confined to his apartments at the Rice Hotel, Houston, Tex., with several fractured ribs, sustained when he fell while inspecting a pipe line in Louisiana. Mr. Cushing laid the first pipe lines in Texas in the old Corsicana Field and later in the Spindletop Pool and has a wide acquaintance among pipe line officials all over the country.

* * *

The Wilcat Club, an auxiliary of the Mid-Continent Oil & Gas Men's Association, is to be organized among oil men of the Gulf Coast. A. M. Bowman, general purchasing agent of the Humble Oil & Refining Company, and John Suman, assistant manager of the production department of the same company, are commissioned to begin the preliminary organization work. Clubs are now in existence at Tulsa and Dallas and another will be organized at Fort Worth. It is a social association designed to draw men engaged in the same line of business closer together.



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Natural Gas Developments

GAS INDUSTRY PLANS NEW SALES PROGRAM

The manufactured gas companies of the country, acting through the American Gas Association, are undertaking comprehensive programs for the stimulation of gas sales, according to Alexander Forward, managing director of the association. These programs are progressive and within the scope of practical accomplishment, and he feels they will result in further increased sales of gas within the next few years.

Efforts to increase the use of gas include both domestic consumption and factory and industrial heating business, which Mr. Forward claims has long been the backbone of the gas industry, has shown normal growth in the past two years, and with the intensive development of automatically controlled gas ranges, refrigerators, incinerators, and water heaters, further increases can be expected soon.

"The house-heating business alone offers a tremendous field for expansion by the gas industry," says Mr. Forward. "A heating service that is absolutely automatic requires no attention whatsoever, and at the same time eliminates the dirt and grime of solid fuels, appeals to Americans. Already the house heating load has assumed large proportions in some cities, and with a further education of the public to this superior method of heating, the entire house-heating business seems destined to be served by gas."

The stimulation program will not be limited to gas companies alone, Mr. Forward explains. All agencies, such as plumbers, architects and builders, will be included and co-operative work undertaken.

"By means of sales conferences, manuals, advertising, and all other forms of sales efforts, the gas companies are actively going after the heating business in this country," Mr. Forward says. "Scientific research is being employed, both in industrial laboratories and in colleges and universities, and large sums of money appropriated to develop the industry to that point where it can economically take on all the heating business."

NEW CAPITAL NEEDED BY THE GAS INDUSTRY

The manufactured gas companies of the United States will need not less than $2,000,000,000 of new capital within the next 10 years for equipment and extensions to meet the increasing demands for gas service, according to Harry C. Abell, former president of the American Gas Association. That is an increase of 50 per cent over the present capitalization of the gas utilities, estimated at more than $4,000,000,000.

The increasing use of gas for house heating and in industry is the outstanding factor in the need for greater production, according to a statement by the American Gas Association. At present, one-fourth of the country's supply of manufactured gas is consumed in industrial plants.

A survey made by the General Federation of Women's Clubs indicates that 52,000,000 people are using gas in their homes, this domestic consumption amounting last year to approximately 350,000,000 cubic feet.

TO INSPECT INSTALLATIONS

A feature of the ninth annual convention of the American Gas Association, to be held at the Hotel Stevens, Chicago, Ill., October 10 to 14, will be inspection trips to many of the manufacturing plants in which gas is used for heating.

These trips are being arranged by the industrial gas section of the association to give the members a chance to inspect gas installations in actual operation.

SEEK TO RESTRICT GAS USE

AUSTIN, Tex., Aug. 27.—Enactment of a Federal law giving state of origin power to restrict uses to which natural gas may be put when piped from one state into another will be asked of next Congress by the Railroad Commission of Texas. Necessity for such a law, it is pointed out, grows from the fact that while the manufacture of carbon black by burning natural gas can not be done in Texas unless a special permit is granted by the oil and gas division of the Railroad Commission, there is nothing to prevent the piping of natural gas from Texas into another state and its use there for manufacturing carbon black. Comparatively few carbon black permits have been granted in Texas.

HELIUM PLANT PLANS HAVE BEEN DELAYED

Delay has been granted by the Texas Railroad Commission to the Alt Engineering Co., applicant for a permit to manufacture carbon black at Fort Worth. The company proposed to use gas from the helium plant after the helium had been extracted, enabling the plant to run at full capacity. Government officials recently announced there is a chance that it will be moved to Amarillo because of a failing gas supply.

W. B. Alt, head of the engineering company, will lay a pipe line to Nocona, in the event he is given a permit, supplying the helium plant first and using the waste product from there at his own plant, he said.

A dispatch from Amarillo says a proposed Federal helium plant there, probably the largest in the world, is expected to be in operation in two months. R. A. Cattell, chief of the helium division of the Bureau of Mines, is quoted as saying that negotiations for the purchase of land upon which the plant will be built are near consummation, and work will start in three weeks.

According to the Washington dispatch, Amarillo production will be approximately 1,500,000 feet a month under normal conditions, but this can be indefinitely increased in case of emergency.

BEGIN KANSAS CITY AND AMARILLO SURVEY

KANSAS CITY, Aug. 27—Five engineers on the staff of Day & Zimmerman, consulting engineers of Philadelphia, have begun a survey for construction of a gas line from Amarillo, Tex., to Kansas City for the Citizens' Industrial Gas Co. Forty to sixty days will be required, and construction is to start immediately upon completion of the survey, it was announced by John Knorpp of the Citizens' company.

The New York banking firms who will underwrite the $35,000,000 bond issue necessary to construct the line was announced by Mr. Knorpp. They are Peabody, Houteling & Co., and Hemphill, Noyes & Co.

COLUMBIA GAS REPORT

The Columbia Gas & Electric Corp. and subsidiaries report for the year to June 30 gross earnings of $96,058,586. Net earnings were $32,772,870 after expenses, taxes, renewals, replacements and depletion. Net income applicable to preferred and common dividends after leases, interest and priority dividends was $23,616,950. Annual dividend requirements on 922,581 shares of 6 per cent preferred stock issue May 31 total $5,535,486. Gross earnings in the six months to June 30 were $52,470,662 and net to dividends $13,381,961. Gross earnings in June were $6,769,703 and net to dividends $1,015,842.

RADIO WARNS USERS OF BREAK IN SERVICE

What is believed to be the first warning ever broadcast over the radio was sent out recently by the United Gas Improvement Co. of Philadelphia to warn customers and further advise them that the gas service has been temporarily discontinued because of an accident to a large gas main when a sewer contractor's blast proved disastrous.

The sewer contractor was engaged in work parallel to the gas main supplying a territory of from 40,000 to 50,000 people in suburban Philadelphia. His blast, which was either poorly covered or too heavy, was the cause of 50,000 cold dinners for one evening.

The notice broadcast from stations WFI, WIP, and WOO notified the customers that they would have to do without gas service until repairs could be rushed through.

OMAHA ALSO HOPING TO GET NATURAL GAS

OMAHA, Neb., Aug. 27.—Metropolitan Utility district, which operates water, gas and ice plants, announces a reduction in gas rates that will lower gross revenues $150,000 a year. The small consumer will continue to pay the same, 80 cents for 500 cubic feet or less per month, but there are reductions of 10 cents in other classes, the new rates being: 99,500 to 100,000 feet, $1.10 per thousand; next 100,000, $1; over 200,000, 90 cents, all subject to 10 cents a thousand discount. The average rate received in 1926 was $1.09, the same charged in Lincoln.

Considerable pressure is being brought on the district board to investigate the possibility of getting natural gas from the Texas oil fields, as Kansas City, trade rival, has just made a contract that gives it an edge on manufacturing costs for factories.

ANSWERED 2,707,415 SERVICE CALLS IN YEAR

Gas service is becoming a more and more important factor in the lives of citizens every year, according to Oscar H. Fogg, vice president of the Consolidated Gas Co. of New York and vice president of the American Gas Association.

"During 1926 the New York company, and its affiliated companies, responded to 2,707,415 calls for special service to customers," says Mr. Fogg. "This is an average of more than 309 calls an hour every day and night of the year, including holidays and Sundays.

"A small army of specially trained men must be kept to provide the customer with service when he demands it. The increasing use of gas for cooking, refrigeration, incineration, and house heating has completely changed the complexion of the gas business. Gas is no longer the product sold. It is service."

CARBON BLACK PLANT SOLD

DENVER, Colo., Aug. 27.—Colorado's only carbon black plant has been sold at a sheriff's sale. The plant was built by the Rio Blanco Carbon Co. to operate in the White River gas field in Rio Blanco County. It tried a process which is said to have been a failure. This was replaced by three standard type burning houses, but the company's finances had become so depleted that it finally had to cease operations. It was purchased by Frank Barmettler of Denver for around $1,500. Mr. Barmettler hopes to sell the plant to somebody who will operate it to supply carbon black for a printers' ink factory in Denver with which he is associated.

MERCER COUNTY GASSER

MERCER, Pa., Aug. 27.—The gas well drilled on the farm of F. P. Miner in East Lackawannock Township that borders on Mercer has been encased and measures a capacity of 50,000 feet a day, it is reported by E. H. Hovis, who is the drilling contractor and member of the company of Mercer men who have under lease in this territory 2,500 acres which they will test for oil and gas.

Mr. Hovis, who is also a member of the Mill Run Oil & Gas Co., with three wells in Springfield Township, to the south of Mercer, states that three wells for this company will be drilled this fall as well as two more for the East Lackawannock company.

SOUTHERN CALIFORNIA GAS COMPANY MERGER

SAN FRANCISCO, Calif., Aug. 27.—To eliminate a prospective duplication of legal papers and book work, the Southern California Gas Co. filed with the State Railroad Commission an amended petition for the purchase of five other utilities.

The original petition asked permission to purchase the Midway Gas Co., Central Counties Gas Co., Hanford Gas & Power Co., River Bend Gas & Water Co., and the Valley Natural Gas Co. Inasmuch as the Midway Gas was in the field for the other four, the amended petition asks that Midway Gas be allowed to complete the purchase of the four others named and that Southern California Gas then be allowed to purchase the resultant merger.

The physical properties involved represent an expenditure of $12,795,200, the petition avers.

Southern California Gas asks permission to issue and sell Series "B" 5½ per cent first and refunding gold bonds in the amount of $26,785,000 to cover the acquisition. Of the amount, the $12,785,000 represents actual physical properties and the balance is to retire outstanding bonds of the various merged organizations.

A. B. MacBeth, executive vice president of the corporations, and Mr. Peat testified the consolidation will benefit both stockholders and consumers by reducing operating costs. Duplication of bookkeeping and other overhead charges will be eliminated and better service will be given, it was testified.

TO USE SUNBURST GAS

CASPER, Wyo., Aug. 27.—The matter of a gas line from the Sunburst Field to Great Falls is still being agitated in that district of Montana. The Northern Natural Gas Development Co. is drilling wells in Sunburst to obtain gas for the line, and at this time there is 47,000,000 feet production daily there. The Hope Engineering Co. of Mt. Vernon, Ohio, is to lay the line if the project is feasible. The promoters of this new line will merely deliver natural gas to the city limits of Great Falls Gas Co., now supplying manufactured gas to the city, would take over the natural gas and distribute it through existing mains to its customers.

GAS FOR SAN ANGELO

SAN ANGELO, Tex., Aug. 27.—Progress of the Western Gas Service Co. in piping San Angelo to have natural gas here by October 12 was inspected by E. C. Deal of the George L. Ohrstrom Co., New York, and A. T. Knies, vice president and general manager of the local concern. They expressed satisfaction at the rate the company is going in piping the city. Forty-two miles of the ditch to the Coleman County gas fields has been dug and only 20 miles more must be dug.

Savings *by* Smith

The A.O. Smith method of manufacturing makes it possible to produce 30 ft. lengths in diameters of 16 in. to 22 in. all of uniform length, diameter and thicknesses.

Fewer Joints

Smithsteel Pipe is made plain end and plain end beveled for any field joint. The 30-foot lengths of Smithsteel Pipe will require only 175 joints to the mile as compared with 262 needed for the usual 20-foot lengths of pipe.

Jointing Simpler

Smithsteel Pipe is accurate in both outside and inside diameters. The wall thicknesses are uniform. The joints will butt up evenly at all points making alignment and either welding or coupling simpler and surer. Joining will therefore be quicker and easier.

The Use of Less Metal

Due to the A. O. Smith method of fabricating, and the high quality steel, less metal can be used in the body of the pipe.

Put only the metal underground that you need

In the past the gas line builder has had to take pipe of existing specifications, whether it fitted his needs or not.

Now Smithsteel Gas Line Pipe can be made to any desired specification. You can specify *any thinness* that you want. Due to the Smith Method of fabrication, it is possible to make Smithsteel Gas Line Pipe round and accurate in any desired thinness.

Smithsteel Gas Line Pipe is made in outside diameters of 16 to 22 inches.

It is made in uniform lengths of 30 feet.

It will save on metal, transportation, and cost of joining. The left hand column deals with the savings.

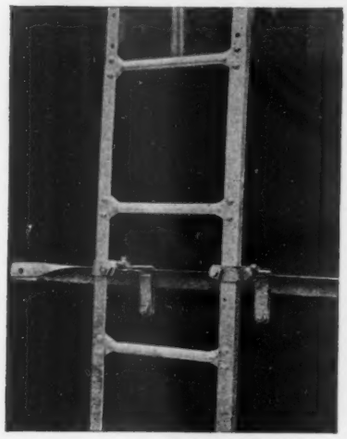
A. O. SMITH CORPORATION :: *Milwaukee, Wisconsin*
Oil Field Products Division Los Angeles

SMITHSTEEL GAS LINE PIPE

EQUIPMENT AND SUPPLIES

INTERESTING DESIGN OF PATENTED LADDER

A ladder of interesting design is the patented ladder built by the International Derrick & Equipment Co., furnished as regular equipment on all Ideco derricks.



These ladders are built with 1-inch round pressed steel rungs, permanently fastened to angle side rails by a double riveted construction. Experience, the manufacturers say, has proven that the round rungs are much superior to any other type of tread as they provide an easier grip and eliminate much of the danger of slipping. The entire ladder is hot dip galvanized after fabrication. The heavy coat of galvanizing covers the entire ladder and eliminates the possibility of there being any exposed surfaces to weather and does away with the danger of rivets and rungs rusting away.

Special patented clamps are provided for attaching the ladder to the derrick girts. This universal connection, it is said, eliminates the necessity of drilling holes in the girts, is adjustable on the ladder side rail and also along the girt. This makes possible the attaching of Ideco ladders at any position, on any side of the derrick and also permits changing the ladder from one derrick to another regardless of size or height. Staggering of the ladders for use with the Ideco safety platforms is made easy by using these connections.

The frequent practice of running the circulating pipe up the center of the derrick ladder creates an unnecessary hazard. When this is done in order to climb the ladder the workman has to straddle the pipe and in cases where the top of the pipe leans to one side the man has difficulty in getting a proper foothold. The location of the circulating pipe in the center of the derrick side is common practice due to the fact that the pumps are hooked up in pairs. Through the use of Ideco ladders and adjustable clamps, it is said to be a simple matter to shift the ladder a foot or so to one side and to eliminate this hazard.

W. A. TROUT ON SURVEY

W. A. Trout of the Emsco Derrick & Equipment Co., is at present on an extended business trip through the Texas Panhandle and the Mid-Continent Fields. The purpose of his trip is to make a complete survey of the territory and of general business conditions for the Emsco company, which manufactures steel derricks and drilling equipment in its Los Angeles, Calif., and Houston, Tex., plants. Mr. Trout will spend some time in Houston with L. R. McCollum, manager of the Texas plant.

STEEL INDUSTRY BEING KEPT BUSY WITH MUCH SMALL LOT BUSINESS

By B. E. V. Luty

PITTSBURGH, Pa., Aug. 29.—The closing days of August have found the steel trade in no better position than it occupied in July, when there was a decrease in activity both from June and from the preceding July. It has been the universal experience in recent years that when the steel business generally picked up after the midyear letdown it would do so promptly enough to make August production of steel much above that of July. Now it is doubtful whether the official report for the month will show a rate even equal to that of July.

Predictions of a decided improvement in tonnage for the remainder of the year are, indeed, now largely withdrawn. Some improvement is expected, but not such an improvement as would make the half year compare at all favorably with the second half of last year.

Steel production is between 65 and 70 per cent of capacity, where it has been since late in June. There are variations from one week to another, and between districts, but nothing of substantial importance. With few exceptions mills are scheduled for operation almost on a day-to-day basis.

Despite the decrease from early in the year and from last year, a large amount of steel business is being done. The number of orders leaves nothing to be desired except that they might be fewer, but larger. An astonishing amount of small-lot business is being done. Nearly all the trade is actively buying, but in unusually small lots.

The lightness of demand is widespread, only one line making a favorable comparison with last year, that being the fabricated steel trade. In the first six months of this year lettings of fabricated structural steel jobs just equaled those in the first six month of last year, whereupon came July making a new high record and bringing the seven-month total 5 per cent above that in the seven months of last year. August seems to have run quite heavy and the eight months may make a still more favorable showing.

Automobile production decreased 21 per cent from May to June and then 17 per cent from June to July, while August did not witness the usual increase, commonly due to new models. The seven months showed 13.3 per cent less production than the seven months of last year, counting all passenger cars and trucks produced in the United States and Canada.

Freight car and locomotive buying has continued to decrease until of late it has been down practically to nothing. Buying was lighter in 1925 and 1926 than formerly. It was lighter early this year than in 1926 and in the past two months it has been lighter than early in the year. The railroads have relatively ample funds but are so well fixed that they do not need to improve their rolling stock much, particularly as traffic is showing no increase this year.

Oil Country Goods

Demand for oil country tubular goods shows no improvement in the past few weeks, and perhaps there is a slight further loss. Pipe mills now have no expectation of any increase in demand for the remainder of the year, except that line pipe business has a chance of developing almost any time. The mills are now nearly through with the various large orders booked earlier in the year.

Finished steel prices are holding very firmly all along the line. To some observers this is remarkable, considering the decrease in demand. To others it is apparent that the mills have no alternative but to hold prices rigidly, since any slipping would be likely to end in substantial declines. It would be vastly more difficult to get prices up again than it is to hold present prices.

Coal demand has increased considerably and prices are somewhat higher in West Virginia and western Pennsylvania.

The coke and pig iron markets continue dull and there is no change in the scrap market.

CHAPLIN-FULTON CO. BUILDING NEW PLANT

A contract has been let and plans announced by Chaplin-Fulton Manufacturing Co. of Pittsburgh, Pa. for a new four-story office building at 38-40 Penn Avenue. President William McKee states that the building will be started at once and will be in use by January 1. The new plant will adjoin the present factory. In addition to the new structure, a full story will be added to the entire present plant.

During construction there will be no interference with production and when the work is completed the company will have a 100 per cent increase in capacity. This building program, necessitated, it is stated, by a steadily growing volume of business, will enable Chaplin-Fulton to make more prompt deliveries than have been possible for the past few years during which time their production facilities have been constantly taxed to capacity.

TRADE LITERATURE RECEIVED

From Indiana Truck Corp., Marion, Ind., detailed specifications of a new 3-ton speed truck for the petroleum industry. It is a special purpose unit requiring extra frame length and loading space.

From Bethlehem Foundry & Machine Co., Bethlehem, Pa., a new bulletin, No. F-14, describing the wedge furnace as applied to the revivification of fuller's earth in the petroleum industry. The furnaces are said to be in use by many large refiners.

From Foamite-Childs Corp., New York, the current number of the Industrial Fire Chief, which contains many novel and interesting illustrations particularly about old time fire fighting apparatus.

From General Electric Co., Schenectady, N. Y., several bulletins devoted to electrically heated melting pots, electric furnaces, automatic reduced voltage starters for synchronous motors, cartridge units, mechanical driven turbines, control switches and duplex controllers.

From Union Electric Manufacturing Co., Milwaukee, Wis., publication No. 1,150, detailing information on special drum controllers for oil-field pumping and drilling units.

From Sivyer Steel Casting Co., Milwaukee, Wis., a folder on steel castings made by that company.

From Armstrong Brothers Tool Co., Chicago, Ill., a general catalog of that concern's line of tool holders, pipe tools, and drop forged wrenches.

From Link-Belt Co., Chicago, the new belt conveyor equipment data book containing 144 pages replete with technical and practical information, and a valuable handbook of this type of equipment. It is well illustrated and shows clearly the progress that has been made in the art of conveying materials rapidly, continuously and economically.

HAS SERVED 25 YEARS

Henry L. Erlewine, secretary, treasurer and general manager of the Marion Machine Foundry & Supply Co. of Marion, Ind., was the first employe hired when the

Henry L. Erlewine

company was formed 25 years ago, and he has held the triple responsibility placed on his shoulders through a quarter of a century.

He was born at Cameron, Monroe County Ohio, October 28, 1878, and after his education was completed he became a school teacher. He was interested in shop manufacture and practice, and entered an oil field supply shop in the Sistersville, W. Va., fields.

BLAW-KNOX PURCHASES MILLIKEN BROTHERS CO.

The Blaw-Knox Co., with general offices at Pittsburgh, Pa., and with plants at Blawnox, Pa., and Baltimore, Md., has purchased the Milliken Brothers Manufacturing Co. of New York. The consolidation of the two companies will become effective on September 1.

The Blaw-Knox Co. is well known because of its line of steel specialties including steel forms for concrete construction, steel buildings, open hearth furnace equipment, air preheaters, hammer welded products, steel transmission towers, automatic concrete measuring devices, steel bins and clamshell buckets.

A considerable amount of the business of the Milliken Brothers Manufacturing Co. has been in the export field and the present Milliken organization will continue to function in this field and in addition will take over the management of the export business of the Blaw-Knox Co.

KEROTEST REPRESENTATIVES

Shep F. Miers, familiarly known throughout the oil fields as "Big Shep," has been appointed factory representative of the Kerotest Manufacturing Co. of Pittsburgh, Pa. He will cover the Mid-Continent and Gulf Coast fields in the interest of Kerotest products and make his headquarters at Houston, Tex.

Harry C. Potts, field engineer of the Kerotest Manufacturing Co., is now on an extended busniess trip through the South American oil fields of Colombia, Venezuela, Argentine and Peru.

W. G. Swaney, general manager of the Kerotest Manufacturing Co., is now in California visiting the various oil fields in the interest of Kerotest products. He will return East, visiting the Colorado and Wyoming fields.

Axelson Machine Co.
Sucker Rods, Pull Rods, Plunger Working Barrels (Pumps, Etc.)

Beaumont Iron Works Co.
Dreadnaught Rotary Equipment, Water-Cooled Draw Works, Pumping Hoists, Traveling Blocks, Etc.

Carbic Manufacturing Co.
Acetylene Gas Generators and Welding Equipment

Donovan Boiler Works
Oil Country Boilers and Tanks

Frick-Reid Service Belting
Rubber Covered and Friction Surface

Jensen Bros. Mfg. Co.
Pumping Jacks

National Transit Pump and Machine Co.
Power and Steam Pumps

J. P. Ratigan
Grips, Clamps, Beam Hangers

Joseph Reid Gas Engine Co.
Gas and Oil Engines, two and four-cycle, Band Wheel and Direct Drive Pumping Powers

Rossendale-Reddaway Co.
"Camel Hair" Belting, Belt Clamps

Whitlock Cordage Co.
Manila Cordage, including Frick-Reid Manila Bull Ropes —same quality for ten years.

Lapweld and Seamless Tubular Goods

Walworth Company
Valves, Fittings and Tools for Steam, Water, Gas, Oil and Air

Engineering Crews
For the installation of Pumping Powers and related equipment.

WHITLOCK The Utmost in Rope Value MANILA

The World's finest Cordage

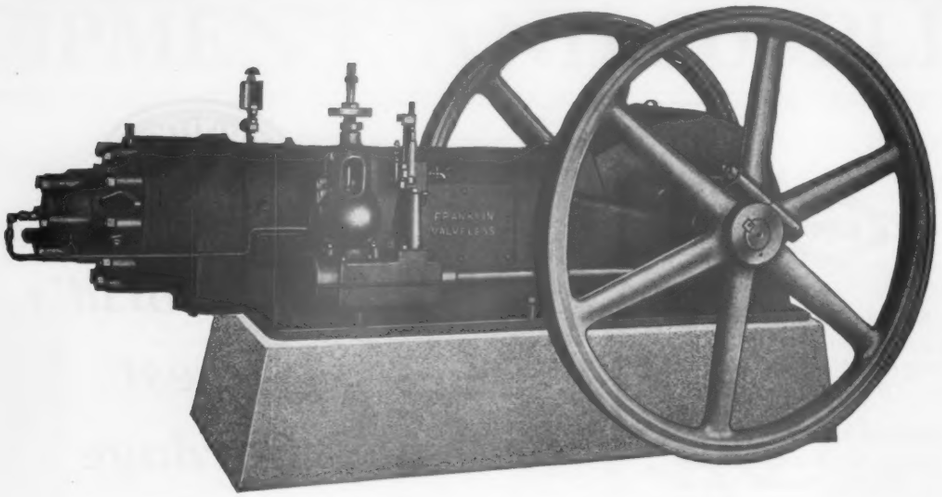
FOR EVERY industry on land and sea, Whitlock makes the world's finest cordage. Whitlock Drilling Cables are not only 100% Pure Manila, but are made from fibre selected for its high quality.

These Cables are lubricated, but not loaded, so that for every pound you get maximum yardage. They wear as a unit instead of fraying on the outside, and the service they render is astounding.

Oil men are also familiar with Frick-Reid Manila Bull Ropes, which for ten years have been of uniformly high quality. Pure Manila, properly lubricated for pliancy and long wear.

Frick-Reid
Supply Co.
Tulsa, Okla. Pittsburgh, Pa.
West of the Mississippi, Stores Everywhere
East of the Mississippi, The Frick & Lindsay Co.

FRANKLIN VALVELESS



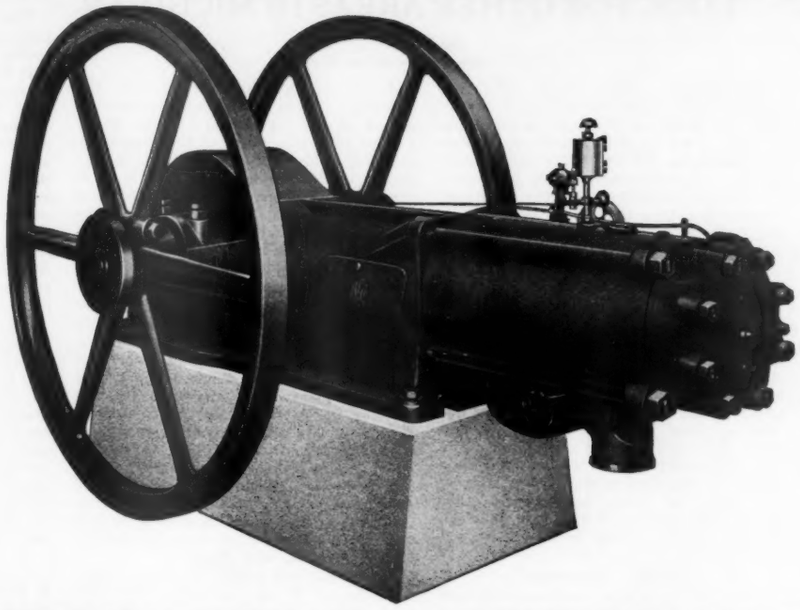
THE FRANKLIN
Oil Pumping Engine

HERE is the power plant that has the fewest possible number of parts to require attention, adjustment, repairs or replacement. After you've finished drilling, move in one of the Franklin Oil Pumping Engines. Any user will tell you that it can be operated at an extremely low fuel, water and lubricating cost.

These pumpers come in 30-40-50 and 75 Horse Power. Can be equipped with Reverse or One Way Clutch.

THE FRANKLIN VALVE
Franklin,

Distribu te
OIL WELL SUP
Branches in



THE FRANKLIN
Gas Pumping Engine

AFTER you've finished making hole, move your Drilling Engine to the next job and hook up a Franklin Gas Pumping Engine. Interchangeable on the same block without shifting a single bolt. These engines can show you a power, speed and flexibility almost unbelievable.

Say good-bye to the old "biler" and learn what real economy and freedom from trouble is like. Ask any Franklin user!

LESS ENGINE COMPANY
Penna.

EASTERN FIELDS

(Continued from Page 60)

Henry district, Clay County, the United Fuel Gas Co. completed in the Big Injun sand No. 5 on the J. M. Gross farm. It is a gasser good for 250,000 feet. In the same locality, the same company has completed in the same formation No. 3 on the same farm and it is a light gasser. The location is three-fourths of a mile east of No. 5.

Duster in Wood County

In Walker district, Wood County, the South Penn Oil Co. has completed in the Berea grit a test on the J. D. Walker farm. It is a duster. In Union district, the South Penn Oil Co. is drilling on the M. M. and W. W. Pratt, S. E. Grant and Nettie M. Dye farms. In Burning Springs district, Wirt County, the South Penn Oil Co. is drilling down from the salt sand a test on the Maria J. Wilson farm. In Sheridan district, Calhoun County, Brown, Daubenspeck & Parks have the rig completed for No. 27 on the Baker Baughman farm.

On Charleys Creek, Grant district, Cabell County, the Aetna Oil & Gas Co. has drilled No. 3 on the John Davidson farm from the salt sand to the Berea grit. It is a gasser good for 300,000 feet in the lower formation. On Rocky Step Creek, Scott district, Putnam County, Kirtley & Keller's second test on the Edgar Maddox farm is a duster in the Big Injun sand. The same parties have drilled a second test on the Jennie Jones farm into the salt sand and good for 900,000 feet. Latton & Franklin have started to drill a test on the Morgan-Simms farm. The Colonial Gas Co. has started to drill on the Nora B. Sutherland farm.

Ritchie County

In Union district, Ritchie County, Ira D. Cox and others have completed in the Big Injun sand a second test on the D. J. Richards farm, good for 5 bbls. a day. In the same district the Lloyd Oil & Gas Co. is drilling a second test on the Ingram farm.

Near Uler, Geary district, Roane County, and 2 miles northeast of the South Penn Oil Co.'s No. 59 on the O. D. Stockley farm, the same company has drilled a test on the W. H. Smith farm to a total depth of 2,921 feet. It is dry in all sands and will be abandoned. It was hoped this test would show an extension to the Big Injun sand pool in Henry district, Clay County. The latter seems to be fully defined.

On the waters of the Kanawha River, Center district, Calhoun County, the Hope Construction & Refining Co. has completed in the Big Injun sand a test on the A. Hardman farm. It is a gasser good for 1,000,000 feet. The location is 1 mile northeast of L. B. Carroll's No. 6 on S. M. and M. T. McConaughey farm.

Drilling Tests

On the Little Kanawha River, DeKalb district, Gilmer County, the McCall Drilling Co. has started to drill a test on the R. E. Davis farm, 2,000 feet northwest of its test on the Louisa Danley farm. On the same stream and in the same district, Harley Satterfield has a rig up for a test on a part of the same farm. In Grant district, Pleasants County, L. P. Bickel & Son have started to drill No. 5 on the A. V. Hammett farm.

In Courthouse district, Lewis County, the Hope Natural Gas Co. is building a rig on the J. A. Rorhbaugh farm. In the same district, the same company has started to drill on the Clara A. Hill farm. In Skin Creek district, the Carnegie Natural Gas Co. is building a rig on the W. H. McCune farm.

In Southwest district, Doddridge County, the Pittsburgh & West Virginia Gas Co. has started to drill on the James Reed farm. In the same district, the same company has the road completed to a location on the F. R. Wanstreet farm. In Glenville district, Gilmer County, the Sears Oil & Gas Co. is drilling on the A. B. Campbell farm.

In Union district, Ritchie County, John Lock and others are building a rig on the John A. Hall farm. In Grant district, Robert Richards has started to drill a test on the O. C. Thomas farm.

In Murphy district, Smith & Whan are rigging up on the Charles Wolf farm. In Grant district, the Hope Natural Gas Co. is rigging up to drill deeper its test on the J. M. Lewis farm. In Murphy district, the Hope Construction & Refining Co. has started to drill on the J. L. Hill farm. In Union district, Wood County, Rothwell & Co. are rigging up at a second test on the John Freshwater farm.

Marion County Tests

In Mannington district, Marion County, the Clifton Oil & Gas Co. is drilling at 3,210 feet at a second test on the Belle Snyder farm. In the same district, the Delmar Oil Co. is drilling at 2,850 feet on the J. C. Tennant farm. In the same district, the Buffalo Oil Co. has the road completed to a location on the N. C. Grim farm. Monroe & Laughlin have rig material at a location on the J. W. Tennant farm. All locations are inside of defined territory. In Grant district, Wetzel County, the Shimwell Oil & Gas Co. is still fishing at 3,053 feet at its test on the Joseph Price farm. It looks like a hopeless job to recover the tools. In Butler district, Wayne County, the Chartiers Oil Co. is drilling at 1,800 feet at its test on the B. A. Ferguson farm.

Southwest Pennsylvania

In Aleppo Township, Greene County, the Manufacturers Light & Heat Co. has a Gordon sand gasser at a test on the William T. Weimer farm. In Washington Township, the Greensboro Gas Co.'s second test on the Fay Headley farm is a gasser in the Big Injun sand.

In Springhill Township, Greene County, J. H. Neill has a gasser in the Gordon sand at a test on the Doctor Rice heirs' farm. In Perry Township, the Carnegie Gas Co.'s test on the Edward Haines farm is a gasser in the Big Injun sand. In the same district, the same company's second test on the Minor Lemley farm is dry in the fifth sand. It has been abandoned.

CENTRAL WEST FIELDS

(Continued from Page 60)

sort between Port Clinton and Marblehead, along the south shore of Lake Erie where there are hundreds of large cottages, many of which are permanent homes the year around.

Lima Field

The most activity shown in the old Lima Field of northwestern Ohio is the pulling out and abandoning of many wells that have about given up their all after years of steady grind on the pump. There were 80 old wells reported abandoned during the week, against only 7 new completions. This material from these old wells will be carefully looked over and that still in good shape will be cleaned up and utilized for the drilling of new wells, some of which will be used in the Lima Field and possibly much of the good second-hand material will be shipped into Kentucky and Tennessee where only short strings of pipe are used in the shallow holes of the two states.

In Washington Township, Auglaize County, the Brookside Oil & Gas Co.'s No. 6 well, 400 feet from the north line and 350 feet from the east line of the F. H. W. Kuckerman farm, in the southeast quarter of Section 29, topped the Trenton sand at 1,186 feet and at 40 feet in the sand was put on the beam and showed a 24-hour gauge of 45 bbls.; being the second well of that size on the same farm, during August. A test is now drilling by W. E. Cook and others on the F. Wierwille farm, Section 9, same township. No. 7 is under way on the Kuckerman farm. In Salem Township, same county, Stelzer & Boyd's test in the northwest corner of the A. E. Noble farm, in the southwest quarter of Section 5, pumped 4 bbls., initial, sand being found at 1,145 feet and drilled 53 feet in the sand.

Northeast of Lima, in Bath Township, Allen County, C. A. Peavey drilled in his third well, 300 feet from the north line and 900 feet from the east line of the C. M. Lenney farm, in the southwest quarter of Section 1, finding top of sand at 1,316 feet and drilling to a total depth of 1,359 feet or 43 feet in the sand, getting a 20-bbl. initial pumper.

Wood County

Southeast of Cygnet, in Bloom Township, Wood County, Clark A. Browning's No. 17 well, 400 feet from the north line and 600 feet from the west line of the F. J. Sterns farm, in the northwest quarter of Section 18, struck the top of the Trenton at 1,189 feet and drilled 243 feet in the sand, getting a 20-bbl. natural pumper. This well is located on the "Hogs Back or Sucker Rod Belt" where so many large gushers were found in the early nineties, although at that time few of the wells drilled from only 40 to 100 feet in the sand. In the Colt Pool, in Perrysburg Township, the Oko Oil & Gas Co. is starting No. 14 on the George Deverna farm, Section 29, and George Hoffman and others are starting a second test on the Chas. F. Keller farm, Section 23, while George L. Haubert and others are drilling No. 3 Catherine Smith farm, Section 29 In Perry Township, in the southern part of Wood County, Dennis and others are drilling No. 5 on the Bresler Brothers farm, Section 6.

In Hancock County, Portage Township, Mathias Bros. are drilling No. 13 on the Isaac Hart farm, Section 27. In Pleasants Township, same county, near McComb, northwest of Findlay, the Bath Township Oil Co. is drilling No. 6 on the John A. Bryan farm, Section 14, a mile north of McComb. McClure & Shrack are drilling No. 4 on the Sally Rader farm, also north of McComb.

Seneca County Wildcat

The Scipio Oil Co. is drilling a wildcat well on the J. W. Allen farm, Section 20, Scipio Townsite, Seneca County.

In Catawba Township, Ottawa County, the Ottawa Oil & Gas Co. made a nice gas strike at a shallow depth of 500 feet on the Sunnyside farm, on Catawba Island, and inhabitants are much enthused and hope for a bountiful supply for fuel and lighting of the great fruit growing area south of Lake Erie.

In the Roundhead Field, McDonel Township, Hardin County, the Roundhead Oil & Gas Co.'s second well, 450 feet from the south line and 500 feet from the west line of the Mary A. Austine farm, is credited with an initial production under pump of 30 bbls. Top of sand was found at 1,431 feet and drilled

(Continued on Page 108)

SAGINAW SLOWING DOWN AS SCOUTS LOOK FOR OTHER AREAS IN MICHIGAN

By Whit

Staff Correspondent, Michigan Fields

SAGINAW, Mich., Aug. 27.—The great activity that has prevailed in the Saginaw Field of Michigan is bound to slacken down to some extent as scouts are searching the State for other spots to test. Announcement made by James C. Graves, president of the Saginaw Prospecting Co., the oldest company in the field, in fact the company that discovered the Berea sand field to the north edge of Saginaw, and which has drilled close to 70 wells since opening the field, that as soon as the 7 wells now drilling are completed further development for the present will be suspended as no new locations will start. This decision was made when the stockholders held a meeting to stand pat on the 70 wells drilled although the company's holdings have numerous other locations to drill at any time they wish to start operations. The completion of the seven wells should come about during September. No announcement has been made as to what other large well owners in the field will do. Some may shut down while others will keep drilling tools going.

Showings Elsewhere

Considerable wildcat work is under way in several counties that may bring about active drilling operations, especially at this time in Gratiot and Shiawassee County as well as in parts of Saginaw County, especially in the southwestern portion where thousands upon thousands of acres have been taken under lease, near Owosso and Ashley, where showings of both oil and gas have been found. Midland County, to the northwest of Saginaw County, is to have another test as the Pure Oil Co. has secured a large acreage and is starting a test on the J. B. Faynor farm, in Greendale Township, of that county. Announcement is made that the Pure Oil Co., with the Sebewaign Prospecting Co., will drill three shallow tests in the northwestern part of Huron County, northeast of Saginaw, south of Saginaw Bay and south and west of Lake Huron, on the long point extending to of this strip of trritory has been leased, not alone by the Pure Oil Co., but by many other concerns that contemplate making tests in the near future.

Southwest of Saginaw in what is called the Ashley Field of Gratiot County, the Sun Oil Co. drilled its second well in that field, which is reported on the Edwin Robbinnolt farm, in Elba Township, and went to a depth of 2,597 feet where it was given a 40-quart shot and may make a small producer from the Saginaw sand. The Berea sand in this well was found at 2,018 feet, but only 8 feet of this sand was found and that was dry, the showing being in the lower Saginaw formation. The hole is being cleaned out and will get a pumping test. In the meantime the same company is starting a well on the Anderson farm, about a third of a mile south of the company's gas well, the first well drilled in the Ashley territory. Same company is drilling a wildcat on the Gallagher-Scully land, in Antrim Township, Shiawassee County, about 13 miles southeast of its well which is 4 miles west of Owosso, which is a producer under pump.

Wildcat Tests

Southwestern Michigan is about to get a testing for both oil and gas, especially in Cass County, and across the state line in St. Joseph County, Indiana, north of South Bend. J. R. Allen, well known geologist, formerly of Dayton, Ohio, but now of South Bend, Ind., has made a survey of this area in both states, mapping out the structure. Mr. Allen has spent almost three years in studying logs of wells drilled during the past 27 years, and has now arranged for the drilling of three test wells on this structure, work to begin not later than October 15.

Saginaw Field

In the Saginaw Field, the Sun Oil Co.'s Nos. 5 and 6 on the John Stelzreide farm, Section 11, Saginaw Township, are reported showing for 15 bbls. each from the Brea sand, with No. 7 drilling.

Jack Hendricks and others' No. 1 on the Campau property, south of the Grand Trunk Railroad bridge, on the west side of the river, is reported showing for an initial of 30 bbls., or better, being one of the good-looking wells of the late completions. No. 2 is drilling on the same property between the Grand Trunk and Michigan Central Railroad tracks.

Wickes Brothers' second well on its own property on North Water Street, is showing for 20 bbls. or better at a depth of 1,835 feet and on the east side of Saginaw River.

Field Notes

The Dundee Oil & Gas Co.'s test on the Cuthbertson property on the east side of Bay Road, a mile north of Shattuck Road, is in the top of the Brea, ready to puncture the sand.

The Wolohan Petroleum Co.'s well on the Courtney farm, near Birch Run, in Birch Run Township, Saginaw County, south of Saginaw, is reported showing for a small pumper with water to contend with which will be shut off by installing a packer. In three days it pumped around 10 bbls.

Saginaw Prospecting Co.'s No. 6 Northmor and No. 2 Christ Winter farm, north of Shattuck Road and east of Hermansau Road, are both due in the sand, which will leave five more wells under drilling operations to complete before shutting down drilling operations.

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LOUISIANA-ARKANSAS

(Continued from Page 46)

the derrick and location for Nos. 1 and 2 Hoss, Section 35-18-16. Magnolia Petroleum Co. is reaming to the bottom at 2,736 feet in No. 1 Bell, Section 14-17-16. Standard Oil Co.'s No. 2 Trosper, Section 34-18-16, is drilling in lime at 3,129 feet. State Line Oil & Gas Co. has cemented 8-inch casing at 868 feet in No. 5 Thigpen & Herold, Section 26-18-16.

North of the Waskom district and south of the main Caddo Field, J. H. Askew's No. 2 Elliott, Section 12-19-16, has been abandoned at 2,307 feet. In Section 5-20-16, W. E. Dodson has cemented 6-inch casing at 1,865 feet in No. 6 Rives. Falcon Drilling Co.'s No. 1 Schmidt, Section 27-20-15, is drilling at 1,480 feet. T. D. Gray and associates' No. 1 Hart, Section 29-21-16, is shut down waiting orders at 1,910 feet. It had a small showing of oil at that depth. The D. S. Richardson estate has a rig up for No. 5 Youree-Randolph, Section 13-20-15. Standard Oil Co. has a rig up for No. 179 Stiles, Section 33-21-16. No. 187 Stiles has been completed pumping 25 bbls. daily from a sand at 1,868 feet. No. 188 Stiles also has 2 feet of sand at 1,842-44 feet and is to be put on the pump. This company also has a derrick for No. 189 Stiles, Section 27. The Texas Company has abandoned No. 4 Hutchinson, Section 9-15-12, in the extreme southeastern corner of the parish. It tested salt water at 1,955 feet. Woodley Petroleum Co.'s No. B-2 Knight, to the east in Section 11, is drilling at 900 feet.

LaSalle Parish

Ayres Brothers' No. 5 Urania, Section 30-10-2e, Urania Field, is to be put on the pump after encountering 11 feet of sand at 1,519-30 feet. Hope Oil & Gas Co. has cemented 6⅝-inch casing at 1,549 feet in No. 4 Urania, Section 19-10-2e. Bruce Hunt's No. 1 Urania, Section 7-10-2e, has been completed making an estimated 100 bbls. of oil from 3 feet of sand at 1,517-20 feet. Wingfield and associates in No. 2 Gibson, Section 2-9-1e, are drilling past the Urania producing level after testing salt water at 1,516 feet and now are down below 1,812 feet for a test. Zoder and associates have cemented 6⅝-inch casing at 1,502 feet in No. 4 Urania, Section 7-10-2e. Total depth is 1,514 feet.

Monroe District

Falcon Drilling Co.'s No. 1 Gladney, Section 5-21-7e, Morehouse Parish, is drilling at 2,776 feet. W. C. Feazel's No. 1 Faulk, Section 15-20-4e, is down 1,280 feet. Natural Gas Producing Co.'s No. 20 Crossett, Section 21-23-7e, is drilling at 3,340 feet. The Texas Company's No. 1 Sidney, Section 22-20-6e, is in rock at 2,208 feet.

In Ouachita Parish, J. S. Gould is drilling at 1,500 feet in No. 1 Grayling, Section 11-15-2e. Industrial Gas Co. has cemented 6-inch casing at 2,156 feet in No. 1 Sullivan, Section 5-18-4e. Jordon Drilling Co. is down 2,678 feet in No. 2 Fudican, Section 25-18-4e. Ladell Properties, Inc., has cemented 6-inch casing at 2,118 feet in No. 43 fee, Section 31-20-5e. A derrick has been built for No. 44 fee, Section 6-19-5e. Ouachita Gas Co. is drilling at 1,948 feet in No. 4 Lieber, Section 3-19-4e.

In Union Parish, C. E. Camette has abandoned the location he had staked for No. 2 Tugwell, Section 21-22-1e. Natural Gas Producing Co. is drilling at 870 feet in No. 3 Peak, Section 5-20 4e. Southern Carbon Co. has cemented 8-inch casing at 850 feet in No. 1 Jackson, Section 20-20-4e.

Webster Parish

Crusaders Oil & Producing Co. has a rig up for No. 18 Hope, Section 24-21-10. Magnolia Petroleum Co.'s No. 2 Branton, Section 6-22-10, has been shut down at 858 feet. This company's No. 3 Cox, Section 23-21-10, Cotton Valley deep test, is drilling lime at 4,011 feet. No. 4 Marshall, Section 21, is drilling at 1,480 feet. Magnolia Petroleum Co. also has a rig up for No. 1 Waller-O'Bier, Section 32-23-9. Woodley Petroleum Co.'s No. B-1 Cox, Section 23-21-10, Cotton Valley deep test, is fishing for cable tools at 4,310 feet. This test is flowing an estimated 3,000,000 feet of gas.

Arkansas

Smackover Field

In the Norphlet district of Union County, E. M. Jones cored an oil sand at 2,403-09 feet in No. 11 Murphy, Section 17-16-15. In the same section, Magnolia Petroleum Co. is milling out of the casing at 2,730 feet in No. 6 Wilson. In Section 4, Lion Oil & Refining Co. has cemented a short string of 5 3/16-inch casing at 2,594 feet. Total depth of the hole is 2,602 feet. Southern Crude Oil Purchasing Co. is fishing for tubing and rods in No. A-5 Wells, Section 15-16-15. Unity Petroleum Co. has cemented 4½-inch casing at 2,673 feet in No. 12 Roper, Section 3-16-15. On the Ouachita County side, Marine Oil Co. is down 2,000 feet in No. 14 Snyder, Section 34-15-15. Owen Wood Oil Corp.'s No. 7-Snyder, this section, is down 2,627 feet where a mixed string of 4½ and 3 3/16-inch casing has been cemented. Sam Richardson is bailing casing at 2,012 feet in No. 2 Rhoten, Section 32-15-15. In Section 33 is Sunny Jim Oil Co.'s No. 15 Berry, in which casing has been recemented at 2,361 feet to shut off salt water. The total depth is 2,367 feet.

In the Louann district, Smitherman & McDonald are drilling rock in No. B-14 Saxon, Section 5-16-16, with the hole down 2,406 feet. This test is in Union County. In Ouachita County, F. A. Cook is recementing casing at 2,227 feet in No. 3 Johnette, Section 33-15-15, which tested salt water. Total depth is 2,280 feet.

Stephens Field

Brewer and associates have set 10-inch surface casing at 37 feet in No. 1 Curry, Section 32-15-19, Ouachita County. Buffalo Oil Co.'s No. 3 Culp, Section 22, is drilling at 1,800 feet. Louisiana Oil Refining Corp. has cemented 8-inch casing at 2,148 feet in No. 1 Culp, also Section 22. The latter is an old well being deepened, formerly being completed at 1,515 feet flowing an estimated 20,000,000 feet of gas.

Nevada County

Ames & Zing have cemented 8-inch casing at 1,211 feet in No. 1 Wommack, Section 10-14-21. Autrey Oil Co. has a new well in No. A-2 Martin, Section 6-14-20, which has been completed pumping 50 bbls. from sand at 1,180-89 feet. This company's No. A-3 on this lease is drilling below 700 feet. J. J. O'Brien's No. B-2 Haynie, Section 1-14-21, is waiting on a pumping rig. It has a sand at 1,183-91 feet. No. B-5 Haynie, this section, is drilling at 845 feet. This operator's No. B-3 Moss, this section, is waiting on a pumping rig. It has 7 feet of sand at 1,167-74 feet. No. B-4 Moss is down 1,167 feet where 6-inch casing is being set.

KANSAS FIELDS

(Continued from Page 42)

pleted for 25 bbls. in sand at 2,395-2,435 feet.

Graham County

Gulf Coast Oil & Gas Co.'s No. 1 St. John, SW cor. NW SE Section 27-8-25w, is an old well drilling deeper at 1,700 feet.

McPherson County

Polar Oil Co. is building the rig for No. 1 Gray, C NW Section 20-20-3w.

Reno County

Mississippi Valley Oil Co.'s No. 1 Griffen, C SE Section 19-22-7w, is a dry hole at 4,001 feet.

Russell County

Streeter & Stearns' No. 1 Lilak, C NW SE Section 22-15-11w, is a dry hole at 3,500 feet.

Sumner County

Roxana Petroleum Corp.'s No. 5 Mason, NW cor. SE NW Section 25-31-2, is a rig under construction. Pickard and others made location for No. 1 Oxford Townsite, Lot 11, Block 35, Section 11-32-2. Ramsey & Fine made location for No. 1 Oxford Townsite, Lot 15, Block 24, Section 11-32-2. Roxana Petroleum Corp. made location for No. 2 Oxford Townsite, Lot 13, Block 39, Section 14-32-2.

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(Patents Pending)

The FLUOR Adjustable Drift Eliminator and Intermediate Deck

The greatest improvement in cooling towers since the advent of the factory fabricated towers. An internal type of drift eliminator which not only permits control of windage loss but also greatly increases cooling capacity.

Outstanding Features:

No climbing necessary
No bolts to change
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No appreciable time or labor involved

Direct Advantages:

Greatly increased effective cooling surface
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Reduced size of complete tower
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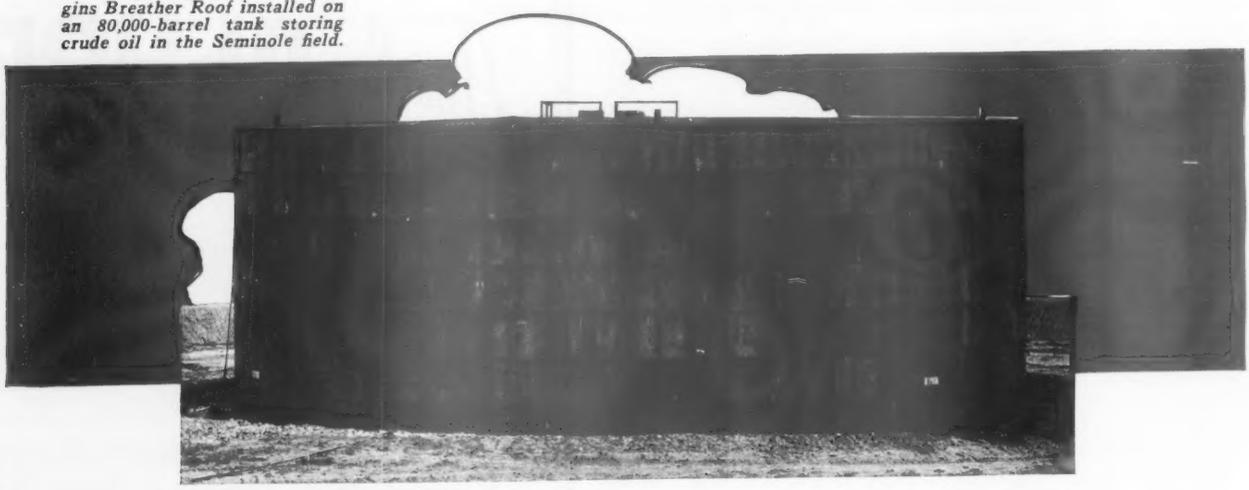
FLUOR REDWOOD COOLING TOWERS

Actual photograph of a Wiggins Breather Roof installed on an 80,000-barrel tank storing crude oil in the Seminole field.



Stops evaporation in NEW WIGGINS

A distinctive new Wiggins Roof!

The Wiggins *floating* roof, well known in the industry and in service on hundreds of tanks has a new companion type—the Wiggins Breather.

Whereas the floating roof is most applicable to working tanks, this new roof is especially designed for standing storage. Its basic principle fits it ideally for tanks filled with oil and held in standing storage for long periods. It does not conflict with the application of the floating type to working tanks where the tremendous evaporation losses due to filling and emptying have always made the "floater" of greatest value.

New Roof Flexes like a Diaphragm

For tanks with an outage not exceeding 2½ feet to 3½ feet the Wiggins Breather Roof provides ample variation in vapor space by its ability to flex from its low position of 10 inches below the top of the tank to its high position of about 10 inches above the top of the tank. Framing is provided to support the roof in its low position when temperatures are low, during the night.

Meets all Contingencies

The long experience of this company in tank and steel plate work makes possible construc-

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Chicago . . . . . 2128 Old Colony Bldg.
Dallas . 1641 Dallas National Bank Bldg.
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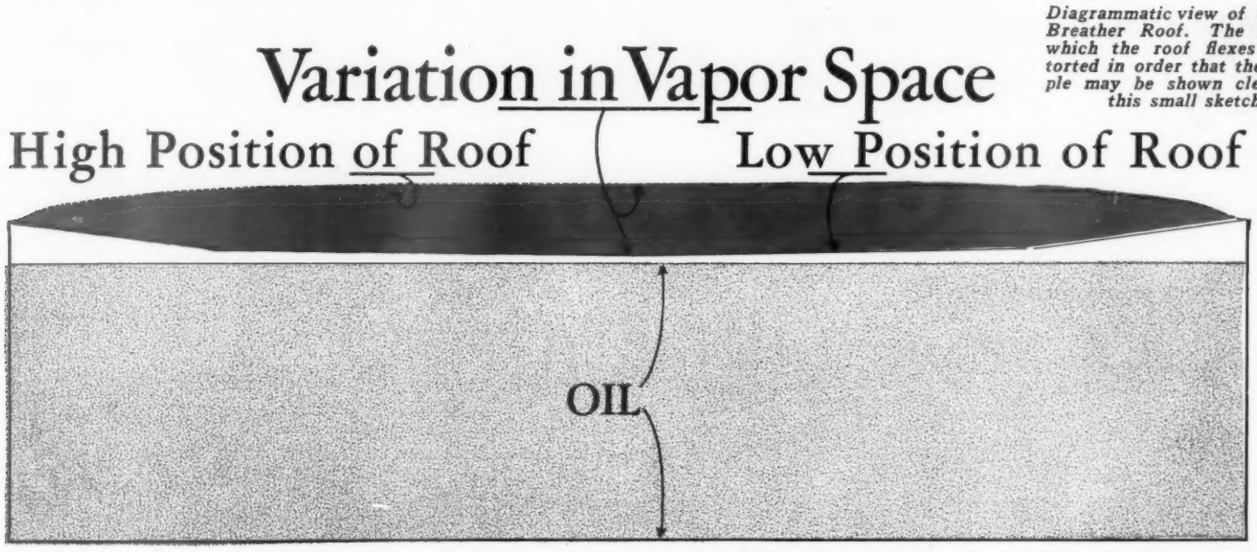
WIGGINS FLOATING *for working storage*



Diagrammatic view of Wiggins Breather Roof. The distance which the roof flexes is distorted in order that the principle may be shown clearly on this small sketch.

standing storage Breather ROOF

tion methods that insure perfect operation of this roof. Especial care is taken in making it gastight.

A volume relief valve is provided which opens mechanically when the roof has reached its maximum upper position, and a vacuum relief at the low point of its travel prevents its being sucked in when the tank empties. A special gauge hatch is also provided.

Proved in Service

An experimental roof 30 feet in diameter which presented the extreme conditions to which a roof of this type would be subjected was tested over a period of time. Then an actual field installation was made on an 80,000 barrel tank which has now been working for several months. The proof of its operating practicability is complete. Records kept on this installation prove the obvious truth that with such a roof made gastight, vapor cannot escape from a standing storage tank and therefore evaporation is eliminated.

Ask for Descriptive Booklet

At nominal cost, it is now possible to do away with that thief of profits—Evaporation. We will gladly send you our booklet now in course of preparation, "Wiggins Breather for Standing Storage." Ask our nearest office for your copy

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BREATHER *for standing storage* ROOFS

O&GJ 9-1-Gray

WILDCAT OPERATIONS IN PANHANDLE

(Continued from Page 40)

FLOYD COUNTY

Explrtn. Co.'s No. 1 S. H. Boone, C. C. H. Johnson Sur. . . Spudded and S.D.
Explrtn. Co.'s No. 1 Land & Cattle Co. . . . . S.D., 246 ft. for casing.

GRAY COUNTY

Amogray Oil Co.'s No. 1 A. Chapman, SW NW SW, Sec. 9, Blk. 26, H. & G. N. Sur. . . . . Drlg., 290 ft.
Atlantic O. P. Co.'s No. 1 Combs & Worley, NW cor. NE Sec. 39, Blk. 3 . . . . . T.D., 3,085 ft; shot 560 qts., 2,947-3,052 ft; sprayed 30 bbls. 24 hrs. and went dead; T.D., 3,165 ft; 6-in. set, 3,150 ft; drlg., 3,305 ft.
Archer, Blake et al's No. 1 Turneau, Sec. 111, Blk. 2-B. . Spudded and S.D.
Amos et al's No. 1 Crews, NW cor. Sec. 9, Blk. 25 . . . . . Shot with 300 qts., 2,720-2,815 ft; T.D., 3,005 ft., bridged and spraying 10 bbls. per day, C.O.
Bay Shore Oil Co.'s No. 1 C. W. Bradford, Sec. 143, Blk. 2-B . . . . . Killed gas, fish. for bit, 2,668 ft.
British American Oil Co.'s No. 1 J. M. Patton, Sec. 61, Blk. B-2 . . . . . Rigged and S.D.; temp. abd.
Camel Oil Co.'s No. 1 Harrah, Sec. 163, Blk. 3, I. & G. N. Sur. . . . . Drlg., 425 ft.
Cole O. & G. Co.'s (was Magdalene Oil Co.'s) No. 1 J. E. Williams, Sec. 17 Blk. 1 . . . . . S.D., 3,860 ft.
Danciger et al's No. 1 Jackson, NW cor. Sec. 88, Blk. B-2. Set 8-in. at 2,477 ft; standardizing.
Donley Gray Oil Co.'s No. 1 J. W. Gordon, Sec. 79, Blk. 3 . . . . . Drlg., 1,485 ft.
Jack Doyle's No. 1 D. W. Osborne, SE cor. Sec. 109, Blk. 3 . . . . . Rig.
Edwards et al's No. 1 E. J. Case, NE cor. Sec. 182, Blk. B-2, H. & G. N. Sur. . . . . Cmt. 12-in. at 1,340 ft; drlg., 1,450 ft.
Empire G. & F. Co.'s No. 1 J. E. Cubine, NE cor. NW Sec. 36, Blk. 25 . . . . . 6,000,000 ft. gas, 2,342-60 ft; top granite wash, 2,397 ft; set 8-in. pipe, 2,472 ft; drlg., 3,349 ft; 2 bailers water, 3,300-20 ft; 2½ bailers water per hr., 3,505 ft; P.B. to 2,740 ft; shot with 150 qts. at 2,712 to 2,750 ft., C.O.
Empire G. & F. Co.'s No. 1 Sarah George, Sec. 151, Blk. 3, I. & G. N. Sur. . . . . Rig.
Empire G. & F. Co.'s No. 1 I. B. Hughey . . . . . To drill deeper from 3,225 ft.
Empire G. & F. Co.'s No. 1 J. M. Saunders, SW cor. SE Sec. 40, Blk. 3 . . . . . Shot with 240 qts., 3,050-3,113 ft; bridged and C.O. and making 5 bbls.
Lefors Pet. Co.'s No. 1 Leach, Lefors Townsite . . . . . Drlg., 725 ft.
Gladis Gray's No. 1 Colebank-Morse (was Foster et al's No. 1 G. Cutebank), SW cor. NE Sec. 65, Blk. 25. . . . 2,905 ft., T.D; plugged back to 2,803 ft; shot 160 qts. 2,430-2,510 ft; 1,200 ft. oil in hole; bailed dry; shot 600 qts., 2,479-2,525 ft; C.O; swabbing 25 bbls. daily.
Gulf Prod. Co.'s No. 1 Bowers, Sec. 29, Blk. B-2 . . . . . Drlg. granite wash, 2,848 ft; 1,500,000 ft. of gas.
Gray County Pet. Co.'s No. 1 Herndon, Sec. 147, Blk 3. . . . Hole full salt water, 3,420 ft; S. D., 3,535 ft.
Gray County Pet Co.'s No. 1 A. Chapman, Sec. 70, Blk. 25. Swabbed 180 bbls. 18 hrs. from granite wash, 2,840-52 ft; S.D. for storage.
Neudigate et al's No. 1 A. Chapman, NE cor. E half SE Sec. 52, Blk. 25 . . . . . Drlg., 2,665 ft; 500,000 ft. gas, 2,760-65 ft; rainbow of oil, 2,820-25 ft; salt water; S.D. granite wash, 2,827-28 ft, repairing rig.
Operators Oil Co.'s No. 1 Bowers, NE cor., Sec. 35, Blk. 3, I. & G. N. Sur. . . . . Drlg., 1,590 ft.
Midwest Explrtn. Co.'s No. 1 J. A. Hood, SE cor. SW, Sec. 33, Blk. 3, I. & G. N. Sur. . . . . Drlg., 1,750 ft.
Pampa Oil Co.'s No. 1 W. R. Campbell, Sec. 90, Blk. 3 . . Drlg., 2,630 ft.
Pampa Pet Co.'s No. 1 Mary Leopold, Sec. 141, Blk. 3. . . Water, 3,230-60 ft; slight oil show in granite wash, 3,572-75 ft; S. D., 3,700 ft.
Purple Sage Oil Co.'s No. 1 Johnson, Sec. 8, Rockwell County School land . . . . . First oil show, 2,645 ft; water, 2,660 ft; show oil in gran. wash, 2,790-95 ft; 8-in. cas. set., 2,803 ft; show gas, 2,814 ft; C.O., 3,208 ft. to deepen.
Riley & Heck's No. 1 Mrs. Hopkins, Sec. 66, Blk. 2-B. . Flow and swabbed 20 bbls. for week from granite wash, 3,000 to 3,010 ft; drlg., 3,014 ft.
Rensoul Pet. Co.'s (was Salisbury & Reynolds') No. 1 M. Huselby, C SE NE NE Sec. 55, Blk. 25, H. & G. N. Sur. . . . . Flow, 40 bbls. daily from granite wash topped, 2,407 ft; drlg. granite wash, 2,845-53 ft. with small increase; shot with 400 qts., 2,695-2,780 ft. and 150 qts. at 2,560-2,620 ft., C.O.
Sullivan et al's No. 1 fee, NW cor. E half SW, Sec. 1, Blk. 1, A. C. H. & B. Sur. . . . . U.R. 10-in., 1,610 ft.
J. Williams et al's No. 1 C. W. Bradford, Sec. 123, Blk. B-2 . . . . . Rig; temp. abd.

HALE COUNTY

Donnell Pet. Co.'s No. 2 Mullican, NW cor. Sec. 66, Blk. A-3, I. & S. B. Sur. . . . . Top pay in sandy shale, 405 ft; ½ bailer oil and 3 bailers water per day, S.D.
Donnell Pet. Co.'s No. 1 Mullican, C Sec. 21, Blk. B, R. M. Thompson Sur. . . . . 200 ft. fluid in hole from 407-14 ft; run. tubing.
Exploration Co.'s No. 1 Crawford, cen. NE, Sec. 17, Blk. C-3, T. T. R. R. Sur. . . . . Spud and S. D.
Exploration Co.'s No. 1 fee, C SE half Sec. 19, Blk. S-4, D. & S. E. Sur. . . . . Rig; T.A.
Exploration Co.'s No. 1 Goodman . . . . . Spudded and S.D.
A. S. Mimm's No. 1 W. A. Ritcher, 700 ft. from east line and 1,200 ft. from south line, Sec. 17, Blk. X, John Glynn Sur. . . . . S.D., 350 ft. for 10-in. casing.

HALL COUNTY

Seifert et al's No. 1 Owens, C NE Sec. 179, Blk. S-5, Dennison & Pacific Sur. . . . . Spudded and S.D.

HANSFORD COUNTY

Oklavania et al's No. 1 Coots, Sec. 13, Blk. 45, H. & T. C. Sur. . . . . S.D., 350 ft.

HOCKLEY COUNTY

World Oil Co.'s No. 1 Ellwood . . . . . Drlg., 400 ft.

HARTLEY COUNTY

Deep Rock Oil Co.'s No. 1 Lymann & Balfour, Sec. 9 Blk. 2 . . . . . Show gas and rainbow of oil, 2,560 ft; top lime, 2,810 ft; 24,000,000 ft. gas, 3,100-3,280 ft; show oil, 3,648-50 ft; 3,653-75 ft. 150 ft. salt water; set 6-in. 3,642 ft.; S.D. 3,765 ft. contract depth.
Eslick et al's No. 1 J. R. Irving, Sec. 13, Blk. 13. . . . . Topped granite wash, 3,108 ft; show oil, 3,226 ft; S.D. 3,570 ft.
J. E. McKanna's No. 1 Frances Farwell, Sec. 30, Blk. 22. . U.R: 6-in to 3,270 ft.
J. E. McKanna's No. 1 J. M. Shelton est., Sec. 29, Blk. 202 . . . . . S.D., 3,595 ft; cas. trouble; rig blown down; rebuilding rig.

HEMPHILL COUNTY

Hoover et al's No. 1 Schaller est., Sec. 4 . . . . . Spudded and S.D.
Hoover et al's No. 1 fee, J. S. Hood Sur. . . . . Run. 5-in. cas. to 4,555 ft; S.D., 4,598 ft.

HUTCHINSON COUNTY

Amarillo Oil Co.'s No. 1 Ida Ingerton, Sec. 41, Blk. 46, H. & T. C. Sur. . . . . 70,000,000 ft. gas, 2,400-2,610 ft; run., 8-in. to 2,665 ft; drlg. 2,800 ft.
Anderson & Pritchard's No. 2 William Yake, SW cor. NW, Sec. 1, Blk. J, H. & G. N. Survey, half mile W of No .1 . . . . . Topped lime, 2,025 ft; set 8-in. at 2,030 ft.
R. G. Barnum et al's No. 1 Garland Sanford, Sec. 78, Blk. 46 . . . . . Rig.
Beam et al's No. 1 Cockrell, Sec. 3, Blk. 23 . . . . . S.D., 405 ft. for orders.
Berryman Oil Co.'s No. 1 Sanford, Sec. 83, Blk. 46, H. & T. C. Sur. . . . . 80,000,000 ft. gas, 2,690-2,905 ft; show oil, 2,915 ft; show oil 3,030-39 ft; S.D., 3,040 ft.
Big Coach Oil Co.'s No. 1 Dunnaway, Sec. 5, Blk. Y. . . . S.D., 750 ft.
Conklin et al's No. 1 Johnson, Sec. 1, Blk. X03, H. & O. B. Sur. . . . . S. D., 600 ft. for 12-in.
Great Plains Oil Co.'s No. 1 Bivins, Sec. 13, Blk. Y-2, T. T. R. R. Sur. . . . . 60,000,000 ft gas, 2,540-60 ft; S.D., 3,017 ft.
Great Plains Oil Co.'s No. 1 Kingsland, Sec. 4, Blk. Y. . . S.D., 2,345 ft.
Golden Eagle Oil Corp.'s No. 1 J. Q. Bost, Sec. 6, Blk. Y-2 . . . . . Derrick.
McMan O. & G. Co.'s No. 1 Albert Yake . . . . . Drlg., 1,690 ft.
Panfield Oil Co.'s No. 1 Luginbyhl Bros., Sec. 50, Blk M-23 . . . . . S.D., 1,200 ft.
Phillips Pet. Co.'s No. 12 Elva-Whittenburg, E. Tomlinson Sur . . . . . Drlg., 4,259 ft; no report.
Prairie O. & G. Co. and Vacuum Oil Co.'s No. 1 Cal Merchant . . . . . Drowning out 75,000,000 ft. gas, 2,252-2,740 ft; drlg. by tools, 2,550 ft.
Roxana Pet Corp.'s No .1 E. Cockrell . . . . . Top lime, 2,860 ft; flow 1,700 bbls. daily, to deepen.
Skyrocket Oil Co.'s No. 1 Mrs. R. A. Jameson . . . . . Fish., 2,519 ft.
Sweeney et al's No. 1 Johnson, Sec. 38, Blk. Y. . . . . Shut down, 1,720 ft.
The Texas Company's No. 1 Ellis Cockrell, Sec. 1, Blk. Y . . . . . U.R., 8-in., 3,215 ft.
Vitek Oil Co.'s No. 1 W. F. Allen, Jose Rodriguez Sur . . . S.D., 180 ft.

KING COUNTY

California Co.'s No. 1 Spikes Farm No. 2 . . . . . Show of gas, 1,980-90 ft; 6 bailers salt water per hr., 2,085-90 ft; drlg., 2,775 ft.
Gibson & Johnson's No. 1 Burnett est. . . . . Salt water, 2,525-50 ft; run. 8-in. to 2,576 ft; U.R. to 3,380 ft.
Humble O. & R. Co.'s No. 1 Pitchfork, Sec. 171, Blk. A-96, John H. Gibson Sur. . . . . Spudding.
Midwests' No. 1 Patton . . . . . U.R., 8-in., 2,940 ft.
J. L. Pattison's No. 1 Patton . . . . . S.D., 2,225 ft; slight show gas, 2,115-30 ft.
Sinclair . . . . . H.F.W., 3,265 ft.
White Eagle's No. 1 . . . . . U.R. to 3,075 ft.

LAMB COUNTY

Tolbert & Simms' No. Ellwood . . . . . Rig.

LIPSCOMB COUNTY

Cal-Tex's No. 1 Bradford, C NE NE Sec. 899, Blk. 43, H. & T. C. Sur. . . . . Spudded and S.D.
Camp Creek Oil Co.'s No. 1 Mrs. H. D. May, Sec. 612, Blk. 43 . . . . . Shut down, 600 ft.
McCorkle's No. 1 A. Barton, NE cor. SW SE Sec. 504, Blk. 43, H. & T. C. Sur. . . . . Water in lime at 4,126-40 ft; 6-in. set, 4,155 ft; S.D., 4,200 ft.
Ozark Drlg. Co.'s No. 1 Frass, NE SE Sec. 106, Blk. 10, H. & T. C. Sur. . . . . Rig on ground.
Smith, Kinsley & Ruby's No. 1 C. W. Jones, NE cor. SW, Sec. 100, Blk. 43 . . . . . S.D., 3,800 ft.

MOORE COUNTY

Amarillo Oil Co.'s No. 2 Terry Thompson, Sec. 19, Blk. 44. Making 84,000,000 ft. gas; lime, 3,425 ft; gas killed; T.D., 3,556 ft; shut in.
Shadler Bros.' No. 1 John Lowery, Sec. 237, Blk. 44. . . . . Topped lime, 2,680 ft; set 8-in. at 2,770 ft.
Prairie and Shamrock's No. 2 Gober, Sec. 16, Blk. M-21. . Drlg. 810 ft.

MOTLEY COUNTY

Exploration Co.'s No. 1 Burleson . . . . . Spudded and S.D.
Exploration Co.'s No. 1 Tillson . . . . . S. D., 750 ft. for repairs.
Exploration Co.'s No. 1 Matador Land & Cattle Co., cen. SW, Sec. 37, John Gibson Sur. . . . . Spudded and S.D.
Wheeler et al's No. 1 C. D. Bird, C NE Sec. 4, Blk. S, Stephens Sur. . . . . Spudded and S.D.

OCHILTREE COUNTY

W. G. Burton's No. 1 Stickler, Sec. 579, Blk. 43 . . . . . Fish. 3 joints pipe, 3,940 ft.
Hamilton et al's No. 1 R. E. Wamble, Sec. 144, Blk. 43. . S.D., 250 ft.
McCorkle Pipe Line Co.'s No. 1 R. H. Moore, Sec. 471, Blk. 43 . . . . . S.D., 1,600 ft.
McCorkle's No. 1 Weinett, Sec. 674, Blk. 43 . . . . . Fish. for bit, 560 ft.
Standard Dec. Co.'s No. 1 Bowden, Sec. 923, Blk. 43 . . . . S.D., 900 ft.

OLDHAM COUNTY

Prairie O. & G. Co.'s No. 1 Landegrin, SE cor. NE SW Sec. 46, League 310, Capital land . . . . . 1,900 ft. water, 4,085-93 ft; drlg. at 4,340 ft.

PARMER COUNTY

Humble O. & G. Co.'s No. 1 Farwell; elev. 4,005 ft. . . . . Temp. abd., 3,600 ft.

POTTER COUNTY

Amarillo Oil Co.'s No. 1 Masterson, Sec. 69, Blk. O-18, D. & P. Sur. . . . . Drlg., 1,900 ft.
Amarillo Oil Co.'s No. 1-B Masterson, Sec. 43, Blk. G-M-3, G. & M. Sur. . . . . S.D., 390 ft. for water.

ROBERTS COUNTY

Big Bend Oil Co.'s No. 1 Mrs. H. Ledrick & Sons, Sec. 7, Blk. 5-A . . . . . Show gas, 4,990 ft; show oil, 4,992 ft; cas. set at 4,992 ft; S.D., 5,085 ft.
Dunbar's No. 1 H. A. Gill, Sec. 127, Blk. M-2 . . . . . Cellar; temporarily abd.
Murphy et al's No. 1 Gill, Sec. 31, Blk. M-2 . . . . . S.D., 650 ft.
Roco Oil Co., formerly Charles Page et al's No. 1 W. T. Hammon, Clay County school lands . . . . . Spud. and S.D.
C. C. Wilson, No. 1 A. H. Tandy, NE cor. Sec. 182, Blk. 42, H. & T. C. Sur. . . . . Spud. and S.D.

SHERMAN COUNTY

Gibson Oil Co.'s No. 1 Bivins, Sec. 35, Blk. 3-B. . . . . Drlg., 1,970 ft.
Hagy & Harrington's No. 1 S. F. Flores, C SW Sec. 64, Blk. 2-T, T. & N. O. Sur. . . . . Drlg., 1,690 ft.
Phillips Pet. Co.'s No. 1 Price & Fuqua, C NE, Sec. 33, Blk. 2-B, G. H. & H. Sur. . . . . Drlg., 1,980 ft.
Whitehead et al's No. 1 Lee Bivins, C SW Sec. 36, Blk. 2, G. H. & H. Sur. . . . . Location abdn.

SWISHER COUNTY

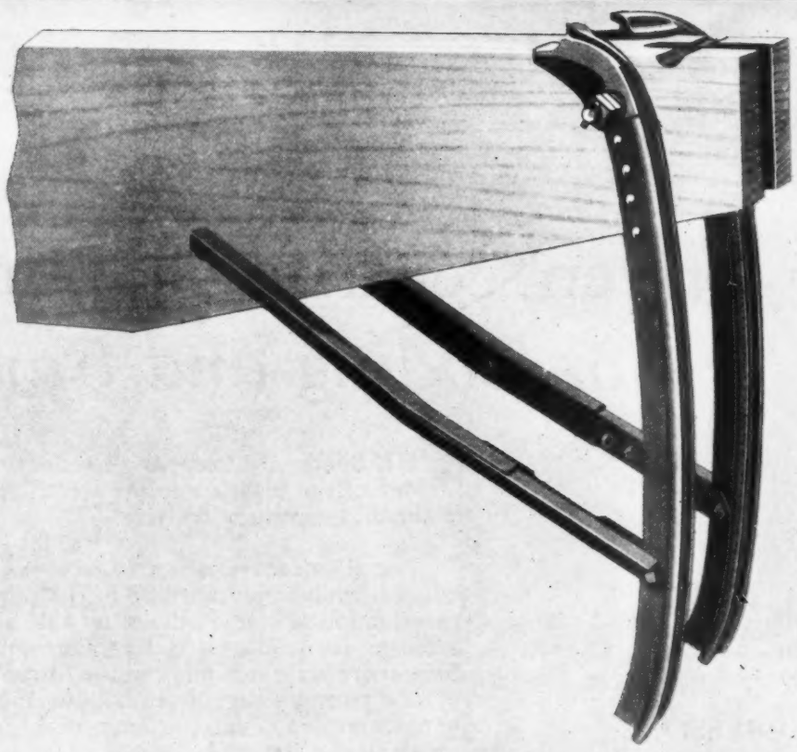
Explrtn. Co.'s No. 1 W. C. Denwiddie, Sec. 70, Blk. M-11, A. B. & M. Sur.; elev. 3,610 ft. . . . . Rig on ground.
R. H. Miller's No. 1 Todd . . . . . Loc. temporarily abd.

WHEELER COUNTY

Angus et al's No. 1 Vermillion, SW cor. NW SW, Sec. 80, Blk. 17, H. & G. N. Sur. . . . . T.D., 2,139; S.D. in granite; 10,000,000 ft. gas, 2,040-45 ft.
Boyles & Johnson's No. 1 S. L. Lewis, Sec. 40, Blk. 24. . Standardizing, 2,050 ft.
Foster et al's No. 1 S. H. McDonald, SE cor. NW SW, J. N. Lindsay Sur. . . . . Spudded and S.D.
Hatcher et al No. 1 J. Hatcher, cen. NE SW Sec. 80, Blk. 23, H. & G. N. Sur. . . . . Location.
Lyons et al's No. 1 Jackson, Sec. 11, Blk. 27, H. & G. N. Sur. . . . . S.D., 2,456 ft.
Marland Oil Co.'s No. 2 W. E. Bentley . . . . . Show gas, 2,305 ft; S.D., by agreement.
Piney Oil & Gas Co.'s No. 1 M. E. Ackley, C NW NW Sec. 20, Blk. 24, H. & G. N. Sur. . . . . Location.
Piney Oil & Gas Co.'s No. 1 W. S. Walker, Sec. 44, Blk. 24, H. & G. N. Sur. . . . . Drlg. gray shale,. 1,630 ft.
J. J. Rook's No. 1 M. Mertel, SE NE Sec. 4, Blk. 24, H. & G. N. Sur. . . . . Fish. casing, 1,300 ft.
Wheeler O. & G. Co.'s No. 1 P. J. Sorenson, Sec. 53, Blk. A-4 . . . . . T.A.
Smith Brady et al's No. 1 P. J. Sorenson, Sec. 53, Blk. A-4 . . . . . S.D., 2,112 ft. for orders, preparing to resume drilling.
E. L. Woodley, Jr.'s No. 1 Woodley, Sr., Sec. 13, Blk. 5-A. Show oil, 2,227 ft; fish., 2,382 ft.
The Texas Company's No. 1 Bell, Sec. 71, Blk. 13, H. & G. N. Sur. . . . . Gas 2,005 ft; swabbed 40 bbls. in 8 hrs. from granite wash, 2,145-55 ft; 1,000 ft. oil; drlg., 2,433 ft.
The Texas Company's No. 1 Morgan, Sec. 93, Blk. 17. . . . Rig.

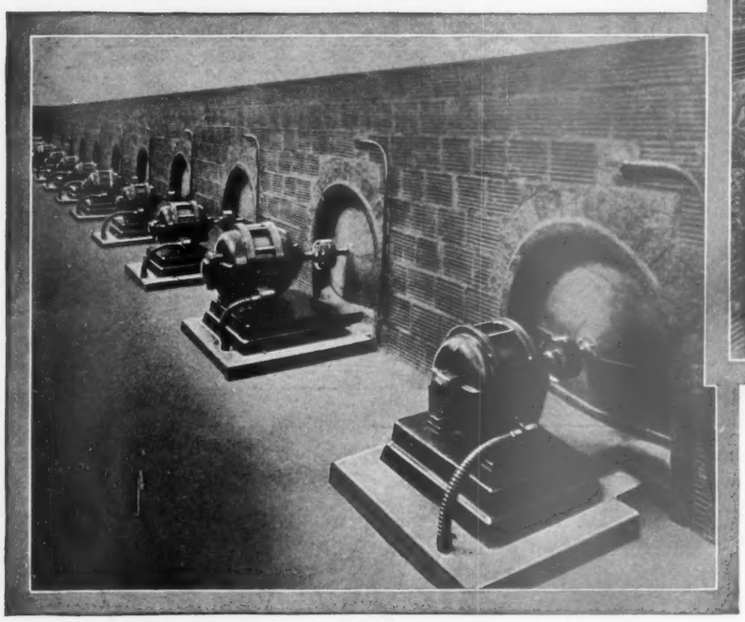
Se

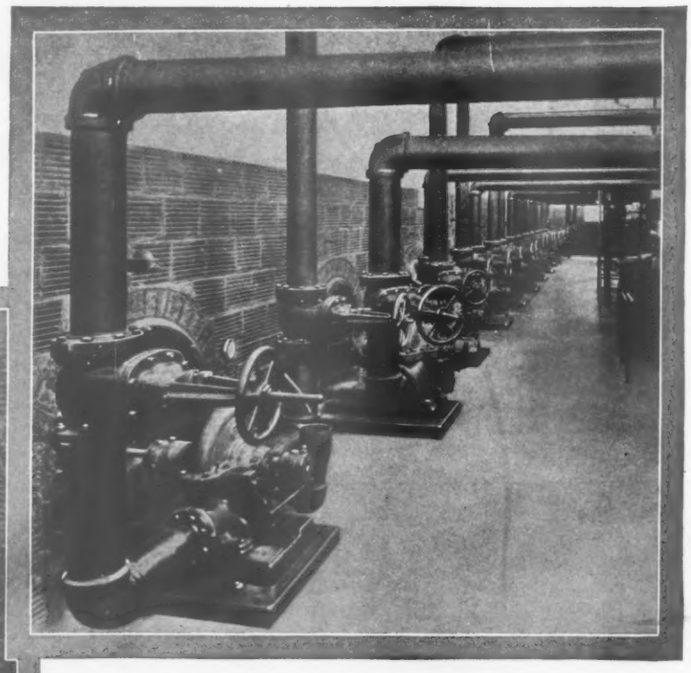
REX
BEAM HANGER



THE NATIONAL SUPPLY COMPANIES

WORTHINGTON





CENTRIFUGAL PUMPS and driving motors in main pump house of the Eldorado, Kansas, refinery of the Skelly Oil Company. Motors are direct-connected to pumps through hollow-tile fire wall, the shafts being packed where they pass through fire wall.

Motor driven centrifugal pumps — *for loading and transfer service*

THE Skelly Oil Company's refinery at Eldorado, Kansas, has one of the most complete electrically equipped pump houses in the mid-continent district.

The illustrations show a group of seven Worthington Centrifugal Pumps, on one side of the pump house direct-connected to induction motors on the other side of the fire wall. The pumps are used for loading gasoline, kerosene and other light oils and for general transfer pumping of these products. The capacities of the pumps range from 500 to 1500 gal. per min. and they operate at heads varying from eighty-eight to one hundred and ninety feet.

This installation is typical of Worthington's ability to meet every advance in the pumping requirements of the petroleum industry with a type of pump exactly suited to the particular operating conditions and type of power available.

Manufacturers of reciprocating and centrifugal pumps, steam and power driven for every oil field, refinery, pipe line and power-plant requirement.

PUMPS
Steam and Power, Reciprocating and Centrifugal

COMPRESSORS
Air, Gas and Ammonia

CONDENSERS
Surface, Jet, Barometric, Steam Air Ejectors and auxiliaries

ENGINES
Oil and Gas

FEEDWATER HEATERS
Locomotive and Stationary

METERS
Water and Oil

WORTHINGTON PUMP AND MACHINERY CORPORATION
115 BROADWAY, NEW YORK CITY BRANCH OFFICES IN 24 CITIES

5635-4

OKLAHOMA FIELDS

(Continued from Page 44)

1s-8w is rigging up rotary tools. Owen & Wood's No. 3 Massey, NE cor SE NW, Section 12-2s-8w is drilling at 1,800 feet. Clarkson & Smith's No. 1 Blaydes, SW cor. SE SE, Section 29-1s-8w is drilling at 800 feet. Beard & Cobb's No. 1 Dierkes, SE cor. NW NW, Section 13-2s-8w, an old well, is drilling deeper at 1,532 feet.

Pontotoc County

American Oil & Refining Co. has moved a machine out for No. 4 Galcrop, SW cor. NE, Section 10-4-6. Louisiana Oil Refining Corp.'s No. 2 Harjo, SE cor. SW, Section 17-5-8 has been completed for 96 bbls. in a broken sand 2,343-48 feet.

Tulsa County

Glidden Oil Corp.'s No. 1 Vannest, SW cor. NW NE, Section 34-19-13 is spudding. L. C. Butler's No. 1 Billy, NW cor. SE SE, Section 32-17-14 is spudding. Transcontinental Oil Co.'s No. 1 Squire, NW cor. SE, Section 8-16-14 is spudding. Holmes and others' No. 1 Harry, SE cor. SW SW NW, Section 6-19-10 was completed for 20 bbls. in the Red Fork sand 1,925-43 feet.

Wagoner County

Gardner & Stevens' No. 1 Thomas, NW cor. SE, Section 14-19-16 has been shut in for 370,000 feet of gas from sand 414-35 feet, total depth 548 feet. W. H. Allen and others' No. 1 McHenry, SW cor. NW SW, Section 29-18-15 is a 50-bbl well in sand 1,233-56 feet. Bryan & Emery's No. 1-A Bilby, SE cor. NW, Section 8-18-16 is dry and abandoned at 724 feet. No. 2-A Bilby, NE cor. NW, Section 8-18-16 is also a dry hole the total depth being 1,252 feet. Enfisco Oil Corp.'s No. 4 Thompson, NE cor. SE SE, Section 9-18-16 has been abandoned at 1,172 feet. H. D. McCracken's No. 3 Hosmer, NW cor. NE SW, Section 21-18-17 is a dry hole at 880 feet. No. 1 Perryman, NE cor. NW, Section 28-18-17 has been abandoned at 1,125 feet.

Pottawatomie County

Independent Oil & Gas Co. and Derby Oil Co. are rigging up rotary at No. 2 Standridge, SW cor. NW SW, Section 14-7-4. Magnolia Petroleum Corp. made location for No. 1 Robins, NE cor. SE SE, Section 15-7-4.

Independent Oil & Gas Co. and Margay Oil Co.'s No. 2 Odell, SE cor. SW SE, Section 4-9-5 Earlsboro Pool had an initial production of 4,855 bbls. in the Wilcox sand, 4,300-4,312 feet. Roxana Petroleum Corp.'s No. 1 Balus, NW cor. NE SW, Section 17-9-5 made 17 bbls. on the pump, producing from the Hunton lime 4,224-29 feet. No. 1 Billington, SW cor. NE, Section 11-7-4 has been abandoned at 4,361 feet. No. 1 Banta, NW cor. NE SE, Section 14-7-4 was completed for 44 bbls. in the Hunton lime 3,679-3,736 feet. Twin State Oil Co.'s No. 1 Spangy, SW cor. SE, Section 19-7-4 Pearson Pool drilled to 4,312 feet in the Viola lime and plugged back to 4,290 and is making 10 bbls. Roxana Petroleum Corp.'s No. 1 Cosar, location NE cor. SE NE, Section 11-7-6 has been abandoned. The Prairie Oil & Gas Co.'s No. 2 Bledsoe, SE cor. NE NE, Section 25-7-3, Pearson Pool is dry and abandoned in the Wilcox sand 4,442-45 feet.

Seminole County

Nowata Oil & Refining Co.'s No. 3 Price, SE cor. NW NE, Section 3-10-8 Cromwell Pool was deepened to the Cromwell sand 3,431-38 feet and swabbed 20 bbls. The well is to be deepened more. Carter Oil Co. made location for No. 3 Sango, SE cor. NE SW, Section 1-9-5 Earlsboro Pool. Gypsy Oil Co. has the cellar dug for No. 4 Sango, SW cor. NW SE, Section 1-9-5. Shaffer Oil & Refining Co. has the cellar dug for No. 6 Clark, NE cor. SE SW, Section 1-9-5. Cellar is also dug for No. 7 Clark, NW cor. SW SE Section 1-9-5. Location has been made for No. 8 Clark, NE cor. SW SE, Section 1-9-5. Barnsdall Oil Co. has dug the cellar for No. 4 Wasutke, SW cor. NE SW, Section 12-9-5. Amerada Petroleum Corp. made location for No. 1 Bradley, SE cor. SW, Section 9-8-6 Bowlegs Pool. Atlantic Oil Producing Co. made location for No. 3 C. Jones, NW cor. SW SE, Section 9-8-6. Location was also made for No. 4 C. Jones, SW cor. SE, Section 9-8-6. Carter Oil Co. made location for No. 1 Melisa, SE cor. NE SW, Section 9-8-6. Magnolia Petroleum Corp. made location for No. 1 N. Graham, SE cor. NW SE, Section 9-8-6. Blackwell Oil & Gas Co. is building the rig for No. 7 Nitey, NW cor. NE SE, Section 35-8-6, Little River Pool. The rig is also being erected for No. 8 Nitey, NE cor. SE, Section 35-8-6. Magnolia Petroleum Corp. made location for No. 3 Pattey, NW cor. SE NE, Section 35-8-6. Carter Oil Co. staked location for No. 3 Fish, NE cor. NW SW, Section 36-8-6. Location was made for No. 4 Fish, SE cor. SW NW, Section 36-8-6. Indian Territory Illuminating Oil Co. is rigging up rotary at No. 3 McCulla, SE cor. NW, Section 1-7-6. The rig is up for No. 10 Nitey, NW cor. SW NE, Section 2-7-6. Rig is under construction for No. 11 Nitey, SW cor. NW NE, Section 2-7-6. Magnolia Petroleum Corp. is building the rig for No. 1 Cruse, NW cor. SE SE, Section 2-7-6.

Barnsdall Oil Co.'s No. 1 Brown, NE cor. NW, Section 10-9-5 Earlsboro Pool was completed for 4,445 bbls. in the Wilcox sand 4,254-75 feet. Gypsy Oil Co.'s No. 6 Peters, SW cor. NW SW, Section 10-9-5 made 1,300 bbls. from the Wilcox sand 4,320-31 feet. Independent Oil & Gas Co.'s No. 3 P. Fixico, NE cor. SW SW, Section 23-9-6 lost the hole at 4,414 feet in the Wilcox sand and was abandoned. Tidal Oil Co.'s No. 6 Mahardy, SW cor. NE SW, Section 24-9-6 is a dry hole in the Wilcox sand 4,135-51 feet. Indian Territory Illuminating Oil Co.'s No. 9 Bowlegs, SW cor. NE SE, Section 26-9-6 made 72 bbls. on the swab from the Wilcox sand 4,152-72 feet. Mid-Kansas Oil Co.'s No. 1 Jacksey, SE cor. NE NE, Section 3-8-6 Bowlegs Pool was completed for 36 bbls. from the Wilcox sand 4,293-4,310 feet. Sinclair Oil & Gas Co.'s No. 2 C. Jones, NE cor. SE SE, Section 9-8-6 had an initial production of 1,335 bbls. from the Wilcox sand 4,063-4,103 feet. No. 3 C. Jones, SE cor. NE SE, Section 9-8-6 made 1,255 bbls. from the Wilcox sand 4,124-67 feet. No. 4 C. Jones, SW cor. SE SE, Section 9-8-6 came in for 2,545 bbls. from the Wilcox sand 4,179-4,204 feet. No. 3 Taylor, NW cor. SE, Section 10-8-6, flowed 1,095 bbls. from the Wilcox sand 4,100-4,190 feet. Pure Oil Co.'s No. 6 Strothers "D", NE cor. SE SW, Section 11-8-6 was completed for 633 bbls. from the Wilcox sand 4,181-95 feet. Indian Territory Illuminating Oil Co.'s No. 7 Livingston, SE cor. NW NW, Section 15-8-6 is dry and abandoned at 4,702 feet. Gypsy Oil Co.'s No. 2 Bowlegs, NW cor. SE, Section 22-8-6 had Wilcox sand 4,330-63 feet and made 692 bbls. Indian Territory Illuminating Oil Co.'s No. 3 Bowlegs, NW cor. NE, Section 22-8-6 drilled the Wilcox sand 4,366-79 feet and made 366 bbls. Gypsy Oil Co.'s No. 2 Wise, NW cor. SW NW, Section 23-8-6 swabbed 30 bbls. from the Wilcox sand 4,385-4,512 feet. Magnolia Petroleum Corp.'s No. 3 Walker, SE cor. NW NW, Section 32-8-8 Wewoka Pool was completed for 185 bbls. after drilling to 4,185 feet and plugging back to 3,883 feet. The Prairie Oil & Gas Co.'s No. 1 Cash, SW cor. SW NE, Section 30-10-6 is dry at 4,580 feet. No. 4 Whitney, SW cor. NW NW, Section 23-8-6 was completed for 1,300 bbls. in the Wilcox sand 4,091-4,239 feet. No. 1 O. Thomas, SW cor. SE SW, Section 2-8-6 is dry in the Wilcox sand 4,722-27 feet. No. 1 B. Harber, NE cor. NW, Section 31-8-7 is a dry hole in Wilcox sand 4,345-60 feet.

BUREAU DRILLS FOR POTASH

Federal funds are available to the secretary of commerce, for drilling operations in the potash fields of Texas, the acting comptroller general, has just ruled. Authority has been granted to Mr. Hoover to make a supplemental contract with the Pennsylvania Drilling Co., Pittsburgh, Pa., to continue its operations in drilling at well No. 4, in Ector County, Texas.

Brake Lining

Worthy of the Name

Ordinary brake lining will not stand the gaff of oil well service. "Cheap" lining is entirely out of the question. It will not wear. It cannot survive. But there is *one* brake lining capable of doing a great, big job in a most efficient manner and that is—GARCO Folded & Molded Brake Lining.

Tough as the asbestos from which it is made. Sturdy as the brakes it lines. Strong, effective and able to withstand heavy duty service day-in-and-day-out. Here is a *real* brake lining, built in such a way that it wears and works under the most difficult conditions. Thickness micrometrically accurate. Readily applied and easily adjusted. Economical because of very long life.

Write for complete information and forget brake lining troubles.

GENERAL ASBESTOS & RUBBER COMPANY
North Charleston, S. C.

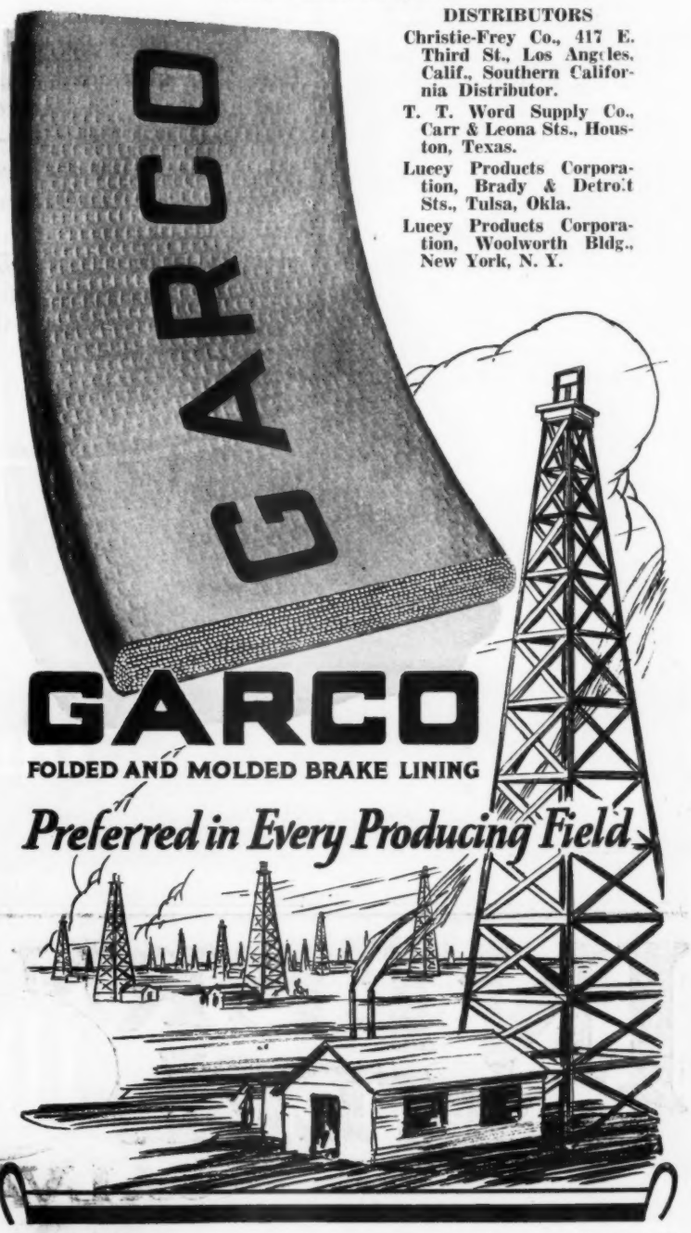
DISTRIBUTORS

Christie-Frey Co., 417 E. Third St., Los Angeles, Calif., Southern California Distributor.

T. T. Word Supply Co., Carr & Leona Sts., Houston, Texas.

Lucey Products Corporation, Brady & Detroit Sts., Tulsa, Okla.

Lucey Products Corporation, Woolworth Bldg., New York, N. Y.



U·S·Air Mail Pilots are G
Beacon Towers built b

THE Government's selection of "IDECO" (galvanized) Structural Steel Towers, whose beacons nightly light the cross-country course of the U. S. Mail Service, demonstrates beyond question the soundness of "IDECO" engineering and construction.

The special "IDECO" construction that resists high winds and storms; the "IDECO" Hot Dip galvanizing protection against weather, rust and corrosion; the safety from fire and lightning—these are essential requirements for towers of this type. These are the same features that have established the strength, superiority and practical economy of "IDECO" Steel Derricks and Equipment, under the most severe service conditions throughout the oil fields of the world.

THE INTERNATIONAL DERRICK & E
COLUMBUS, OHIO TORRA

California Representative: National Supply Co. of California E

INTERNATIONAL
IDECO
STEEL DERRICKS
(GALVANIZED)

e Guided at Night by
t by "IDECO"

THE same construction found in the "IDECO" steel derricks that serve the Oil and Gas industry.

K & EQUIPMENT CO.
RRANCE, CAL.

Export Representation: 74 Trinity Place, New York City - Columbus, Ohio - Los Angeles - San Francisco.

INTERNATIONAL
STEEL DERRICKS
IDECO
(GALVANIZED)

Seamless Steel Tubular Products for the Oil Country

Oil Well Tubing, 2-in., 2½-in., 3-in.
External Upset Tubing, 2-in., 2½-in., 3-in.
Line Pipe, up to 5 inches.
Refinery Piping, 1-in. to 5-in.
Bailer Tubing
Still Tubes, Upset or Plain
Tank Car Piping
Boiler Tubes
Tubular Structural Material
Special Tubing

Special attention is called to the Seamless Steel Pipe (iron pipe sizes 1-in. to 5-in.) offered by this company. The same advantages of seamless steel which have led to the widespread adoption of this material for oil well tubing, high-pressure boiler tubes and still tubes, are now available for various piping installations.

THE BABCOCK & WILCOX TUBE CO.
Works, Beaver Falls, Pa.

GENERAL SALES OFFICE:
85 Liberty St., New York, N. Y.

Branch Sales Offices:

CHICAGO
Marquette Building

DENVER
444 Seventeenth St.

NEW ORLEANS
344 Camp St.

HOUSTON
Electric Building

DALLAS
Magnolia Building

SAN ANTONIO
511 Builders Exch. Bldg.

GALVESTON
414 Security Bldg.

AMARILLO
208 Polk Street

NEW YORK VIEWS WEST TEXAS-PANHANDLE

(Continued from Page 29)

eration of pools or some other similar plan. From a practical viewpoint oil men fear such forced restriction could be brought about only gradually, and not until much of the damage had been done. There is also the chance that by the time restrictions could be enforced over a wide area, natural decline in production would make them superfluous.

Efforts to Curtail

Leading oil interests have been planning for months with a view to handling the West Texas situation in a more systematic manner than leading oil producing districts developed in the past. Many of the leading companies have tried to block out large areas, believing that added expense would be justified by the ability to control production to some extent. Some concerns have acted jointly in taking over prospective acreage, and plan to carry on development on a partnership basis, in such a manner as to avoid liability under any existing antitrust laws.

In the case of the Pecos County development, most of the producing wells have been brought in on a tract owned jointly by two companies.

As an added step in efforts to keep the production situation in line with market requirements, a leading oil purchasing company is attempting to apportion its purchases in a way to keep actual deliveries down and yet do justice to all the producers concerned. This is practically the first time in the history of the oil business a similar situation has been met in advance, because conditions ha dgot beyond control.

The producers interested in West Texas, however, are aware that the situation goes beyond this particular field. Any curtailment there will be fruitless unless similar steps are taken in all the others. In fact it is believed curtailment will fail there unless it is also practiced in the other fields.

Not All Pessimistic

While most of the oil producing men here seem to believe that the potentalities of West Texas and the Panhandle are so enormous as to present a serious threat to the immediate oil outlook, not all of them are so pessimistic. The darkest view was taken by a man who stated he believed that only the shallow horizons of West Texas had so far been tapped, and that doubtless under the 1,000-foot horizon in Pecos County, for instance, several deeper pay sands would be found; and that this situation might be true of all of West Texas.

Some oil men, on the other hand, feel that West Texas and the Panhandle have been over-rated. They point out that the quality of oil produced is not as high as that in Seminole, the high sulphur content being one deterrent quality from a refining viewpoint.

There are others that regard the Pecos Field as more or less of a freak, and state that the real extent and value of the field cannot be fully determined until drilling has gone far beyond the present stage. Possibility of water encroachment grows with the increase in competitive drilling, they point out. The same may be true of other West Texas fields.

While they admit indications so far are extremely favorable, they believe that the industry cannot count too strongly on West Texas until the area is developed further.

CALIFORNIA MARKET IS SHOWING WEAKNESS

LOS ANGELES, Calif., Aug. 26.—The California oil market is showing signs of weakness. While prices remain unchanged in most instances the market is losing some of the stability it has enjoyed during the past few weeks and prices will probably drop somewhat in the near future. One of the larger independent distributors of so-called "bootleg" gasoline is now advertising its gasoline at six gallons for $1, which is slightly under 17 cents a gallon, including tax. Previously, practically all of this cheap gasoline sold in and around Los Angeles has been offered at the rate of 18½ cents. This reduction, then, by one of the larger distributors of more than 1½ cent per gallon is looked upon as a serious factor of the domestic gasoline market. Some marketers even believe another gasoline war may result. This is hardly deemed likely, but it is rather generally agreed retail gasoline prices will be reduced before many weeks.

The demand for export gasoline is still weak and prices have receded slightly. With gasoline prices low in the East this condition is not expected to improve very soon.

Figures just released by the Bureau of Mines covering California operations for July, show that total stocks decreased 1,061,835 bbls. This decrease is due principally to a drain on stocks of refinable crude and gasoline, the first commodity showing a decrease of 1,596,874 bbls, while the latter dropped off 701,209 bbls. In view of heavy production, it can be seen that California operators have been very successful in moving their production during the summer.

Natural gasoline production showed a decrease of 727 bbls. per day during July but utilization remained 453 bbls. less than the daily average production. At the end of the month, there was 622,582 bbls. of natural gasoline on hand which is 21 days supply at the current consumption. This is the largest stock of natural gasoline in California for some time.

Production of fuel oils during July was 18,224 bbls. greater than June daily average production. Stocks of fuel oil and heavy crude increased by 1,179,409 bbls. Export of fuel oil were very heavy in both the Atlantic and Pacific foreign trades. Each took over 1,000,000 bbls. during July, while 412,417 bbls. moved to the Atlantic Seaboard.

Lubricating oil continues sluggish. As yet, the attempt to create an export demand for California lubs has not been successful and stocks are still going up. While production of lubricants during July was 1,831,000 bbls. greater than during June, stocks increased by 46,164 bbls. Next to heavy crude and fuel oils, this was the largest increase in stocks of any commodity in California during the past month.

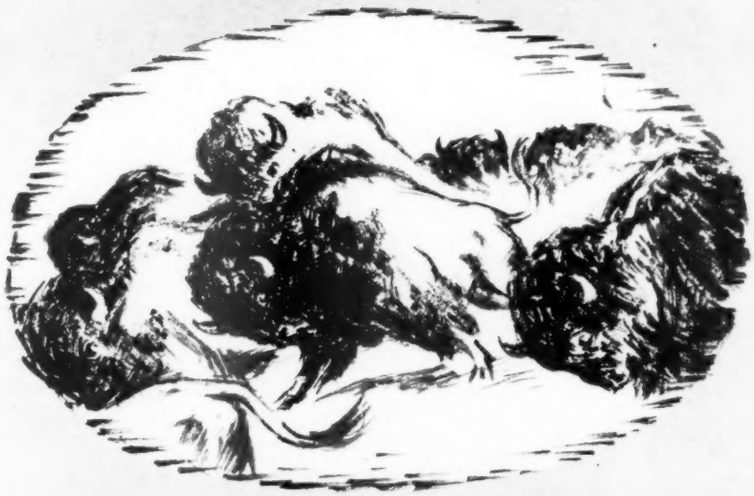
CALIFORNIA RECEIPTS AND PETROLEUM IMPORTS

Imports of crude and refined oils at the principal United States ports for the week ended August 20, totaled 1,206,000 bbls., a daily average of 172,285 bbls., compared with 1,024,000 bbls., a daily average of 146,285 bbls. for the week ended August 13, and a daily average of 182,357 bbls. for the 4 weeks ended August 20.

	Wk. ended Aug. 20
At Atlantic Coast Ports—	
Baltimore	211,000
Boston	30,000
New York	594,000
Others	119,000
Total	954,000
Daily average	136,285
At Gulf Coast Ports—	
New Orleans and Baton Rouge	252,000
Total	252,000
Daily average	36,000
At All United States Ports—	
Total	1,206,000
Daily average	172,285
Daily average 4 weeks ended	182,357

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the week ended August 20, totaled 1,029,000 bbls., a daily average of 147,000 bbls., against 707,000 bbls., a daily average of 101,000 bbls. for the week ended August 13, and a daily average of 96,107 bbls. for the 4 weeks ended August 20.

	Wk. ended Aug. 20
At Atlantic Coast Ports—	
Baltimore	296,000
New York	365,000
Philadelphia	77,000
Others	291,000
Total	1,029,000
Daily average	147,000
Daily average 4 weeks ended	96,107
Distribution of total California oil receipts as follows:	
Crude	264,000
Gasoline	448,000
Gas Oil	163,000
Fuel Oil	154,000
Total	1,029,000



Buffalo Roamed the Plains of Texas

When JARECKI Was Established

When JARECKI was born, seventy-five years ago, men were still living whose fathers fought in the Revolutionary War!

Col. Drake may have had thoughts of sinking his well at the time, but it was six years later before his thoughts were realized.

Texas, celebrating its seventh birthday as a state, was good territory for the popular sport of buffalo hunting while far, far to the west a vague place called California had been ceded by Mexico to the Union only five years before.

Seventy-five years is a long time. The experience and traditions it has given us, combined with strictly modern foresight, progressiveness and equipment, have resulted in a business known throughout the oil country for the quality of its products and fairness of its policies.

JARECKI Valves

Jarecki makes many products, but in none has it put more painstaking care than in its complete line of oil-industry valves . . . . Material is the result of thoro research; design is the essence of *generations* of experience. Operation is always uniform, always dependable. · · Your nearest store is waiting to serve you.

Jarecki

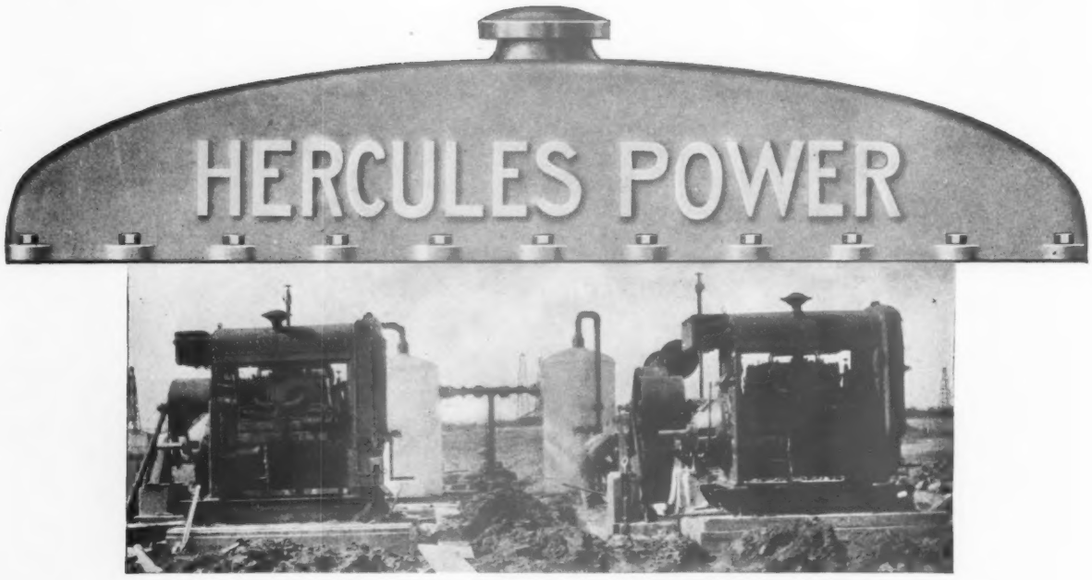
MANUFACTURING COMPANY

Home Office and Factory—Erie, Pa., U. S. A.

General Office, St. Louis, Mo.

Branch stores at all important places in the Oil Country.

District Offices { Pittsburgh, Pa.; El Dorado, Kan.; Tulsa, Okla.; Newark, Ohio; Eastland and Dallas, Texas; Lawrenceville, Ill.



Capacity, Permanence, *and* Economy

Oil field service is a perpetual "test-block" for power units. Under these conditions Hercules Engines have proven their superiority.

More than rugged ability is built into Hercules Engines and Power Units. Hercules simplicity of design has replaced non-essentials with greatly increased strength—with rigidity—with extra wear-resistance. Hercules engineering skill has refined and corrected both fundamentals and details.

Per horsepower, per job, and per year, operating profits are increased by Hercules ability to *design*, to *build* and to *apply* the most power per pound, and per dollar invested.

HERCULES MOTORS CORPORATION, CANTON, OHIO, U. S. A.

Here are Hercules Power Units, Model TXO, on the job driving Worthington Twin Tandem Compressors, 10½" x 4¾" x 12", doing air lift work for the Prairie Oil and Gas Company in Hubbard Pool, near Blackwell, Oklahoma.

SOUTHWEST TEXAS

(Continued from Page 48)

vey, 150 feet to northwest and southwest lines of lease, has been spudded in.

Wheelock & Collins' No. 1 Beatty, Nich Kelly Survey, is location, 150 feet to center of southeast line of 20-acre lease; No. 2 Beatty is location in same survey, 300 feet northwest of No. 1; No. 3 Beatty, Nich Kelly Survey, is location 300 feet northwest of No. 2; No. 4 Beatty, same survey, is location 300 feet northwest of No. 3.

Bexar County

Associated Petroleum Co.'s No. 5 J. Kohler, is location in Survey 265 of the Somerset Field, 1,354 feet to north line and 300 feet to east line.

N. A. Saigh's No. 5 Frees, Survey 49, is location 400 feet east of No. 3.

Medina County

Mid-Kansas Oil & Gas Co. has made location for two wells in Survey 13 3-4 of the Adams Gas Field, one well offsetting Witherspoon's No. 1 Nixon, in Survey 63, and one offsetting Western Gas & Fuel's No. 2 Nixon, in Survey 19.

Witherspoon Oil Co.'s No. 1 Fasseler, Survey 799, is location in Medina County.

McMullen County

Houston Gulf Gas Co.'s No. 2 Fisher is location, test previously reported as C. H. Atherton's No. 1 Lark. Exact location is 600 feet west of Frio River and 1,700 feet south of No. 1 Fisher.

Simmons Oil Co. has made location for No. 2 Reagan.

Milam County

Rockdale Development Co.'s No. 1 Gamble, in proven area, is coring at 1,400 feet.

Jennings Oil Co.'s No. 1 Batts is location in Survey 6, 5 miles northeast of Rockdale, and well is drilling at 1,000 feet.

Kent-Middleton's No. 1 Wells-Henderson, 1 mile southwest of production of the Field, has completed rigging up.

Gonzales County

J. B. Dunning-Pierce's No. 1 Wilkerson is drilling in the R. Ward Survey, one-half mile north of L. P. Unkel's grass roots oil field.

Victoria County

Valley Oil Co.'s No. 1 Stoever is location in Survey 9, in Victoria County, at 500 feet to southeast corner.

Cole Gas Field—Duval

Houston Oil Co.-Sun Oil Co.'s No. 1-B Lopez, Survey 319, Block 4, located 155 feet to northeast and 465 feet to southeast lines, is drilling at 1,380 feet. Newton Drilling Co.'s No. 1 Bruni, Survey 9, located 500 feet to northwest and 150 feet to northeast lines, when drilling at 1,000 feet had gas blowout from 500 feet, but well is under control and now drilling at 1,600 feet. Trussell, Cezeaux & Putman's No. 1 Bruni, Survey 10, located 150 feet to northwest and 450 feet to northeast lines, is moving on.

Simms Field

Breen-Woodward and others' No. 1 Dinn, Survey 666, is location 1,170 feet to north line and 150 feet to east line.

Piedras Pintas Dome

Humble Oil & Refining Co.'s No. 7 Walsh, Survey 185, located 2,050 feet to east line and 1,750 feet to north line, is ready to spud in.

Randado Field—Jim Hogg

Magnolia Petroleum Co.'s No. 26 Merchants State Bank, Survey 415, located 1,600 feet to north line and 1,000 feet to west line, is rigging up.

Alworth Pool

Alworth Brothers' No. 14 Garza, Survey 39, Block 11, located 90 feet to northwest lines and 660 feet to southwest lines, at 1,010-15 feet cored a sand heavily saturated with oil.

Albercas Field—Webb

Magnolia Petroleum Co.'s No. 1 Yeager-Strolman, Block 65, located 150 feet to SW cor., is moving on. O. W. Killam's No. 6 Bruni, Block 34, located 565 feet to west line and 150 feet to north lines, is drilling at 2,215 feet.

Aviator Field

Pittman & Moriarty's No. 1 Puig, Block 4, located 500 feet to east line and 850 feet to north line, has set casing at 1,694 feet on sand. Columbia Petroleum Co., Inc.'s No. 17 Puig, Block 57, located 150 feet to NW cor., is drilling at 600 feet.

Carolina-Texas Gas Field

Houston Oil Co.'s No. 2-A Barnsley, Survey 268, Block 12, located 400 feet to north line and 350 feet to west line, is drilling at 120 feet. T. P. Morgan's No. 2 de la Garza, Survey 335, Block 23, located 400 feet to north line and 350 feet to west line, is drilling at 1,200 feet. Magnolia Petroleum Co.'s No. 2 C. W. Webster, SW NE NW Survey 684, is location 150 feet to NW cor., and derrick is up.

Cole Field No. 2

Magnolia Petrolem Co.'s No. 1 R. Benavides, Survey 2,234, located 420 feet to south line and 162 feet to west line, is drilling at 560 feet. Cole Petroleum Co.'s No. 36 Benavides, Survey 412, Block 14, located 159 feet to east line and 266 feet to north line, at 2,250 feet tested salt water and at 3,400 feet is on hard rock; No. 48 Benavides, Survey 412, Block 5, located 125 feet to north line and 733 feet to east line, is drilling at 600 feet.

Kingsville Field—Kleberg County

Houston Oil Co.'s No. 1 Kissmann, Section 41, Block 9, is drilling at 2,140 feet in tough gumbo. Humble Oil & Refining Co.'s No. 2 Sexauer, Section 41, Block 11, located 200 feet to south and 100 feet to east lines, is drilling at 1,075 feet; No. 2-B Dennett, Section 38, Block 13, located 150 feet to CNL, at 2,801 feet is plugging back to 2,181-2,210 feet to test sand; No. 4 Kleberg, Section 40, Block 6, located 660 feet to east line and 810 feet to south line, is coring in pink shale at 2,945 feet.

Ina Field—Medina County

Golden West Oil Co.'s No. 7 Schmidt, Survey 15, casing set at 885 feet and bailed at the rate of 60 bbls.

Adams Gas Field

Western Gas & Fuel-Witherspoon Oil Co.'s No. 3 Adams, Block 7, is rigged up. Witherspoon Oil Co.'s Special, being drilled 20 feet north of the wild gasser in an effort to mud off the gas, is rigging up; No. 1, L. J. Schmidt, Survey 526, located 800 feet to north line and 400 feet to east line, is drilling at 2,207 feet; No. 1 Nixon, Survey 527, located 1,500 feet to south and 200 feet to east lines, is drilling at 760 feet.

Luling Field—Caldwell

Magnolia Petroleum Co.'s No. 1 Laura Rios, J. Henry Survey, 150 feet to SW cor., at 2,132 feet made 20 bbls.; No. 17 Rios, J. Henry Survey, in the NE cor., is rigged up; No. 15 Proctor, J. Henry Survey, in NE cor., is location. North & South's No. 1 Kelly is drilling at 7,085 feet; No. 2 Tiller is drilling at 6,575 feet.

GULF COAST FIELDS

(Continued from Page 51)

Chapman-Bryan near the mouth of the creek, is at 4,980 feet and drilling ahead.

Other Pools.

C. S. Thomas has a derrick for No. 1 Holmes at Humble. S. R. Buchanan is rigging No. 94 Milhoun at Batson. The Paraffin Oil Co.s No. 70 Paraffin there is drilling at 865 feet. The Decuter Oil Co.'s No. 2 Colorado is around 1,708 feet.

Texas Coastal Wildcats

Austin County—Raccoon Bend; Humble Oil & Refining Co.'s No. 1 Gotoskey is drilling at 765 feet. No. 1 Sherrod is rigging.

Brazoria County — Clemens Dome; Roxana Petroleum Corp.'s No. 2 A. Pabst is at 6,224 feet.

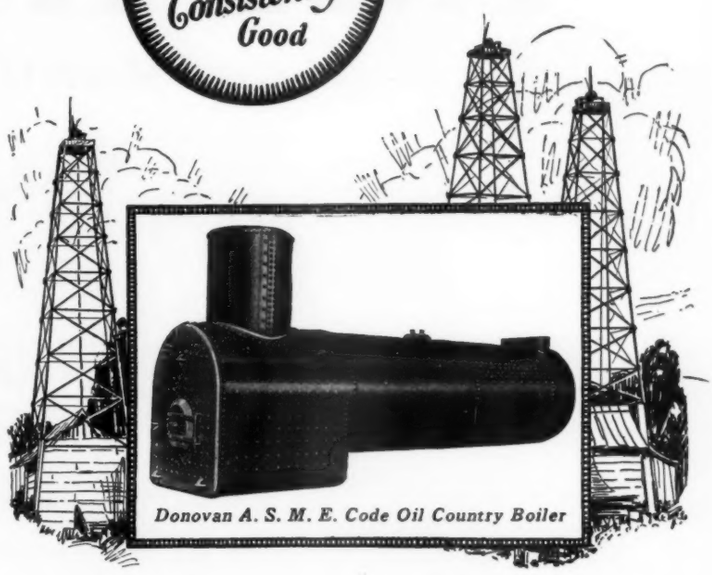
Allen Dome; Roxana Petroleum Corp.'s No. 1 Bernard River is drilling around 4,935 feet. Hon. V. Allen is at 5,054 feet. No. 1 Random shut down.

Stratton Ridge Dome; The Pure Oil-Humphreys Corp.'s No. 1 Armstrong is preparing to test a showing in a sand at 4,420 feet. The Associated Oil Co.'s No. 1 Seaburn is sidetracking at 3,875 feet.

TRINIDAD DUTY ON SUPPLIES

NEW YORK, Aug. 29.—Trinidad has increased the import duty on oil well supplies to 7 per cent. The former rate was 5 per cent. Trinidad is a British possession and, therefore, equipment imported from England is duty free. American equipment is chiefly affected.

Donovan Boilers are Consistently Good



Donovan A. S. M. E. Code Oil Country Boiler

Chosen for Their Strength and Endurance by Practical Men

One of the most enthusiastic boosters for DONOVAN boilers is a man who has used them for the past eighteen years.

This man bought a new DONOVAN in 1909 and has been using it ever since. He is so well pleased with this boiler that he says he just will not part with it. He reports that the boiler has given wonderful service and if it ever wears out, he wants another just like it.

In his opinion, his old DONOVAN is good for many more years of use and he is confident of its reliability.

This is another example of the reliability and staying power of DONOVAN boilers. You see,—the modern DONOVAN has ancestors of admirable qualities. The new ones are even better. No better boiler can be had anywhere at any price.

DONOVANS will solve your boiler problem. You cannot go wrong when you buy DONOVANS.

Manufactured by

DONOVAN BOILER WORKS, INC.

PARKERSBURG, W. VA.

NEW YORK OFFICE—30 Church Street

FRICK-REID SUPPLY COMPANY

Mid-Continent Distributors

GREAT NORTHERN TOOL & SUPPLY CO.

MIDLAND IRON WORKS

Montana Distributors

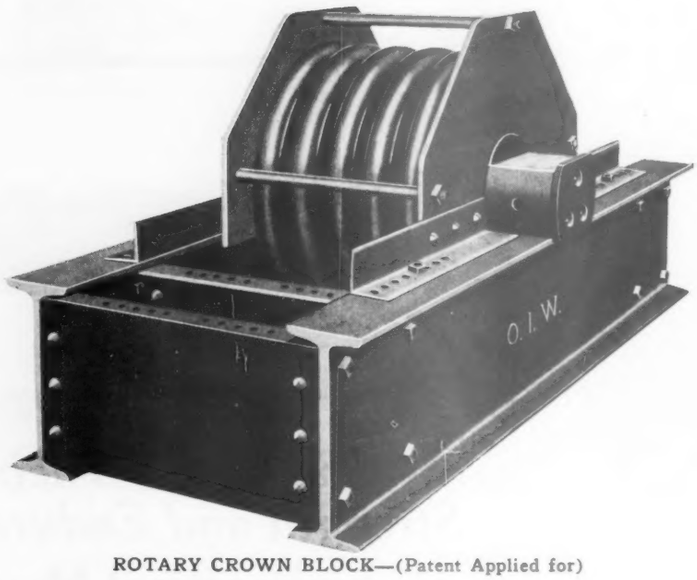
All Leading Supply Houses Throughout the Eastern Fields Handle

DONOVAN QUALITY PRODUCTS

NONE BETTER

IMPROVED

MANUFACTURED BY THE



ROTARY CROWN BLOCK—(Patent Applied for)

THE CORMIER ROTARY CROWN BLOCK is constructed of 2-18″ 90 lb. I-beams 7 ft. 4 inches long rigidly tied together by two Box Girders, one at each end. These I-beams carry one 12″ Center Pin for Pulleys, so constructed as to tie both I-beams rigidly together. This 12″ Center Pin carries 5-30″ diameter Steel Oil and Heat Treated Sheaves. Sheaves are interchangeable with those used on Rotary Traveling Block, same being fitted with a 16″ O. D. Roller Bearing which rotates on the Center Pin, Center Pin being oil and heat treated. Separate Alemite Oiling Systems are directed to each Sheave on the Center Pin. These Sheaves and Center Pins are so constructed and mounted that they can be moved for any desired alignment. The Box Separators are perforated for mounting Sand Line Pulley on this Crown Block when same is to be used with Standard drilling tools.

Weight Complete 6100 Pounds.

The new improved Heavy Duty Traveling Block is constructed with two outside plates 2″ thick, 32″ wide, and 66″ long. It has one 12″ Oil and Heat Treated Center Pin which carries four 30″ diameter Steel Oil and Heat Treated Sheaves, same being fitted with a 16″ O. D. Roller Bearing. Sheaves are interchangeable with those used on Cormier Crown Block. Center Pin has separate Alemite Oiling System for each Sheave. This Block has a 6″ lower pin which carries a heavy forged steel clevis or pendulum as required. Upper pin is 3″ diameter and carries a heavy Cast Steel Separator for holding plates apart and for attaching dead line. All three pins are held in place by the new Oklahoma Iron Works Pin Locking Device which prevents pin from turning, thereby eliminating wear on plates. This feature can be seen on cut of block appearing elsewhere on this page. This block is equipped with steel guards which comply with safety regulations.

Weight complete 5600 lbs.

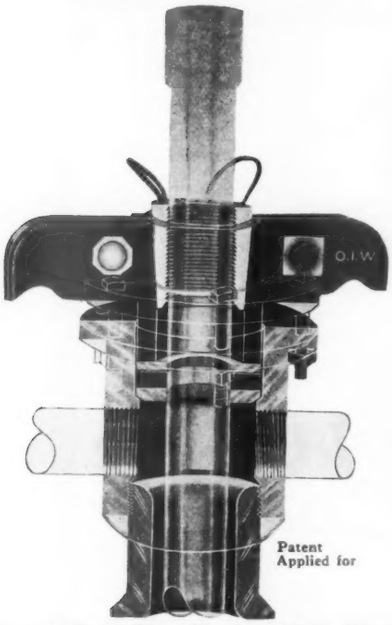
ROTARY TRAVELING BLOCK—
(Patent Applied for)

INTERNATIONAL SUPPLY CO.

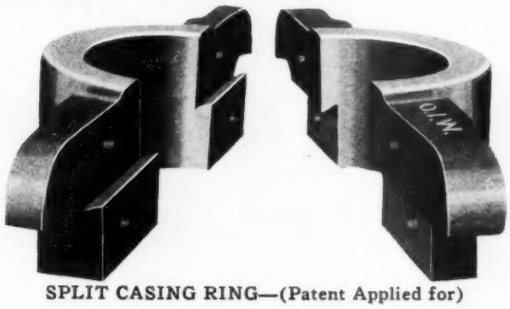
TULSA INTERNATIONAL ISCo SUPPLY COMPANY OKLA.

PRODUCTS

OKLAHOMA IRON WORKS, TULSA, OKLA.



Forged Steel Flow Head—1000 lb. Working Pressure. Furnished with forged steel slips for 2", 2½" or 3" Tubing. Has 2-4" Outlets. Adapter for use in connection with Control Head can be furnished on request. Similar to Regular Stuffing Box Casing Head with additional features permitting raising or lowering of Tubing at your convenience. Regularly furnished with one set of slips only.



SPLIT CASING RING—(Patent Applied for)

Steel Split Casing Ring machined to make a perfect fit in assembling the two halves. In addition to locking feature Ring is held together by four hardened steel bolts, two on each end. Ends of ring have ears to accommodate elevator links. These split rings furnished at slight additional cost over regular solid ones. This ring can be placed about pipe at any time.

SPLIT CASING RING—(Patent Applied for)

30 degree steel Y

Cast steel Y's having 30 degree or 90 degree outlet. Suitable for 1000 lb. Working Pressure. All openings threaded for Casing with top opening also arranged to accommodate Oil Saver or Casing Head Ring. One two-inch outlet on side for snuff line.

90 degree steel Y

All Products produced by the Oklahoma Iron Works have been perfected and manufactured to give safer and more dependable materials. For use in deepest territories.

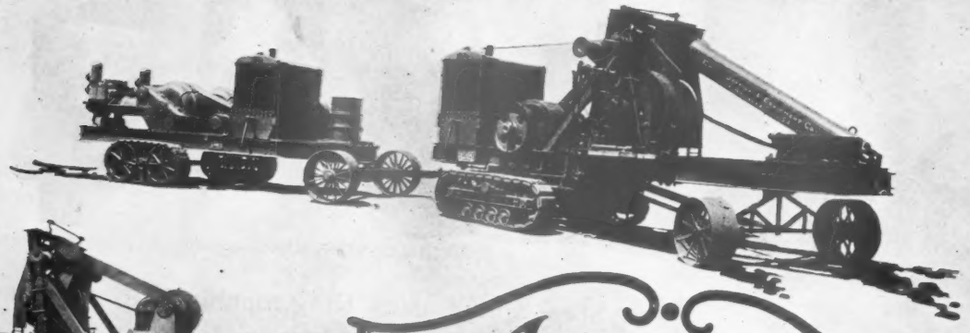
Please communicate with us for bulletins and particulars.

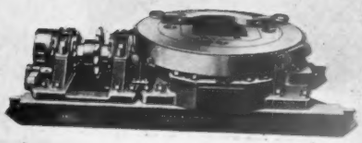
INTERNATIONAL SUPPLY CO.

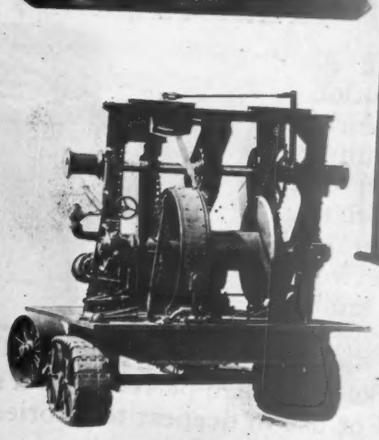
TULSA INTERNATIONAL ISCO SUPPLY COMPANY OKLA.

EMSCO
A Complete Line of Better Oil Well Equipment

Emsco Steel Equipped Wells Are Safe







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JAMES A. VEASEY ON LEGISLATIVE CONTROL

(Continued from Page 32)

of the problems of the industry involving overproduction lies in an intelligent and, to a certain extent, unselfish, voluntary co-operation among producers in each pool to accomplish the objects recommended by the Federal Oil Board. The third class embraces those who believe that co-operation among operators is either wholly impossible of achievement, thus necessitating legislative control, or that co-operative effort, to the extent that it can be brough about, should be supplemented by coercive legislation, preserving gas pressure and perhaps inhibiting competitive drilling. At the moment, no one can predict which of these opinions will prevail. Eventually, however, the petroleum industry may be called upon to determine whether or not the business of producing oil should be regulated by statutory law. Should the conclusion be in the affirmative, the question which will then arise is the degree in which the Federal or State Governments may regulate the production of oil. If the industry is to be forehanded, members of our profession specializing in the law of oil and gas should give this subject their studious attention at once. The sole purpose of this address is to arouse interest in that direction.

Underground Characteristics

As this paper proceeds, the supreme importance of the question suggested above will develop. Generally speaking, petroleum lands are held in small tracts, several, or a number, of tracts being underlaid by a common reservoir. In these circumstances, oil and gas being fluid minerals, correlative rights and obligations between and among the operators interested in the particular pool are established, because the methods employed by one operator in the development of his land injuriously may affect other oil properties in the same pool. To this situation, nearly all the problems of the petroleum industry pertinent to this discussion must be ascribed. The power of Congress to regulate the drilling and operation of oil wells on land held in private ownership in the several states will be emphatically negatived, but the same inquiry into the power of a state presents many serious and difficult questions, the solution of which depends largely, if not entirely, upon an accurate understanding of the physical nature of petroleum in place. At the outset, therefore, this matter should receive our attention. The courts take judicial notice of the propensities of oil and gas under ground, and, unfortunately, they habitually exaggerate the tendency of petroleum, in particular, to wander from one tract of land to another. In point of fact, the drainage area of an oil well is comparatively small. Therefore, ignoring for the time being the effect of gas pressure and volume which will be dealt with later, a well drilled on one tract of land, even though near the boundary of another results in but little actual drainage of adjacent premises. The notion that petroleum, as such, again putting aside the matter of gas pressure, possesses a marked tendency to migrate from one tract of land into a well located on another, is rather definitely refuted by the fact that even under the most approved methods in use at this time the percentage of recovery of an oil deposit ranges from 10 to 25 per cent only of the original oil content, the percentage of recovery depending upon the extent of the gas pressure and volume porosity of the producing formation, and certain other factors which either accelerate or retard actual production. From this it follows that from 75 to 90 per cent of the oil occupying the reservoir remain in place in its original habitat. When this fact is supplemented with the further consideration, that most of the production of a particular well, even though it be a line well, comes from the tract on which the well is located, the specific danger of drainage from one tract of land to another does not reach the importance attributed to it by the courts.

Function of Natural Gas

Putting aside the matter of water intrusion, and other acts of an oil operator in the development of his property, which may injure the producing formation to the detriment of all operators interested therein, the determination of the questions to be considered here will largely depend upon the function of natural gas as the agent for producing oil rather than upon the possibility of drainage of one property by operations of another. Oil is found in sand or sandstone beds under layers of rock which make a gas-tight dome or cover for the oil reserve. The petroleum occupies the spaces or pores between the sand particles, and its natural tendency is to adhere to the sand rather than to migrate therefrom. Forces more or less extraneous in character are necessary to bring about commercial production. A number of factors which may or may not be present in the particular pool either accelerate or retard the production of oil. It will be necessary to refer to but three of these to establish the point of view from which the power of the national or state governments to regulate the drilling and operation of oil wells must be determined. Nearly every formation, saturated with oil, is characterized by a salt water deposit, encountered in the bottom of the sand or on the flanks of the structure, or both, and, hence, hydrostatic pressure is one of the propulsive forces controlling the producton of oil. Frequently, a deposit of natural gas, entirely separated from the oil, will reside in the upper reaches of the producing formation, and here, again, we have a propulsive influence which is a contributing factor to the production of oil; but these forces are merely supplemental aids to the production of oil rather than primary in their importance. The all-important agent incident to oil production remains to be considered: Crude oil under ground, generally speaking, is heavily charged at high pressure with natural gas. This means that the oil contains large quantities of dissolved gas. This commingling of oil and gas does not only increase the fluidity of the oil but overcomes other forces, the tendency of which is to cause petroleum to adhere to the sand. Therefore, for the purpose of this discussion, the principle must be accepted that the gas dissolved in oil is the major factor in producing oil commercially. It not only carries and propels the oil into the opening in the sand made by the well but it is the most important instrument in lifting the oil to the surface. Finally, then, as the subject is now viewed, the dissipation of gas pressure and volume, and the resulting inability of operators having access to the particular deposit to recover the quantity of oil they otherwise would obtain, will furnish a standard for determining the extent of the legislative power to control the drilling and operation of oil wells.

Federal Power

May Congress regulate the drilling and operation of oil wells on lands held in private ownership in the several states? In the broader view, the question presents a twofold aspect: First, the determination of some express or implied power in Congress to so legislate. Secondly, if such power exists, is its exerfise in the situation presented here restrained by the Fifth Amendment to the Federal Court itution? Since we intend to enter an emphatic negative to the first proposition, the second will not be considered. Moreover, whatever merit there may be in the point, that an Act of Congress designed to control the drilling and operation of oil wells would offend the due process clause of the Fifth Amendment, will develop from the discussion of the Fourteenth Amendment in relation to state legislation. In our view, the primary question of power in Congress must be tested by the following considerations: First, by the concept of inherent power in the general Government, arising from sovereignty alone; Secondly, the general welfare clause in Section Eight of Article One of the Federal Constitution; Third, the commerce clause; Fourth, the reserve powers of the States.

The proposition, that our Federal Government is one of enumerated powers, is so elementary that the discussion of the first question should end with its mere assertion were it not that on two occasions, at least, it has been urged before the courts that the Federal Government possesses inherent power by virtue of its sovereignty. In Kansas vs. Colorado, wherein the State of Kansas, in an original proceeding in the Supreme Court of the United States, sought to enjoin the diversion of the water of the Arkansas River by the State of Colorado, where the latter state was appropriating the water for the reclamation of arid lands, the United States Government sought to intervene. It was conceded by the Government that the Arkansas River was not navigable in the region affected, and, accordingly, that the United States had no power to act under the commerce clause. It was further conceded that there was no specific, express, or implied power in the Federal Constitution which could be referred to as a basis for intervention. Counsel for the government predicated their case on two propositions: First, that the subject-matter could be dealt with effectively by the general Government, while it could not be dealt with by the States. Secondly, upon this foundation, it was argued that the necessary power resulted to the United States as an attribute of its sovereignty, that is, its power to govern for the general welfare.

Mr. Justice Brewer, in an illuminating opinion, after restating the doctrine that the National Government was one of enumerated powers, indulged in a striking interpretation of the Tenth Amendment. He said:

"Its principal purpose was not the distribution of power between the United States and the States but a reservation to the people of all powers not granted. The powers affecting the internal affairs of the States, not granted to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, and all powers of a national character, which are not delegated to the National Government by the Constitution, are reserved to the people of the United States."

Farther along in his opinion, he adverts to the familiar principle, that the powers of the Central Government can be enlarged by amendment of the Federal Constitution, and in no other way. Here, we have an epitome of our whole constitutional system. Delegated power in the Federal Government over matters of national concern. Reserved powers in the States over matters of local concern, not specifically prohibited in the Federal Constitution. The people reserving all powers over matters of national importance which are not expressly delegated to the General Government or implied therefrom. And, finally, a method of enlarging the powers of the Federal Government by amendment. This reasoning completely demolishes the novelty of inherent power in the Federal Government, from which it follows that on this foundation, at least, Congress may not regulate the drilling and operation of oil wells on lands held in private ownership in the several states.

Matter of Local Regulation

It is equally clear that the common defense and the general welfare provision of the first clause of Section Eight, Article One of the Federal Constitution cannot be invoked to uphold the power of Congress in this regard. This clause is a limitation upon the taxing power to legislate for the common defense or general welfare. This brings into view the third proposition, namely, the power of Congress to regulate the drilling and operation of oil wells by virtue of the commerce clause. The production of oil, even though the oil is intended for shipment in interstate commerce, is a matter of local and not national regulation.

Whatever doubt there may have been about the power of Congress to regulate matters local to the States, such as mining, manufacturing, or other production, through the indirect route of the commerce clause is set at rest by the two Child Labor decisions. No stronger state of facts could be presented for the extension of the commerce clause so as to include production and manufacturing within the states, and to impinge upon the reserve powers of the States under the Tenth Amendment than the one appearing in these cases. From the viewpoint of the general welfare of the American people, and even from the standpoint of the national defense, in the direction of preserving the man power of the Nation, a prohibition upon child labor would seem to be justified. If the question of federal power in this respect were even a close or doubtful one, the language of the court in the Hammer case is absolutely conclusive:

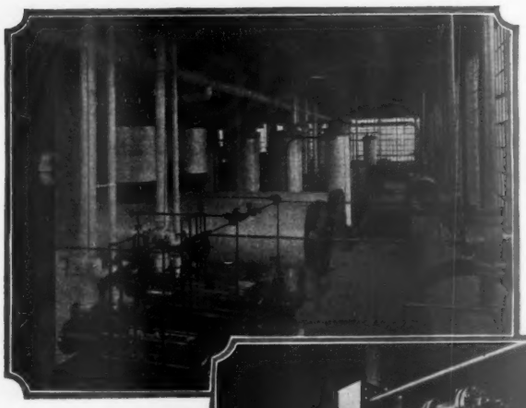
"The grant of power to Congress over the subject of interstate commerce, was to enable it to regulate such commerce and not to give it authority to control the States in their exercise of the police power over local trade and manufacturing. The grant of authority over purely federal matter was not intended to destroy the local power always existing and carefully reserved to the States in the Tenth Amendment to the Constitution. Police regulations relating to the internal trade and affairs of the States have been uniformly recognized as within such control. There should be limitations upon the right to employ children in mines and factories in the interest of their own and public welfare all will admit. It may be desirable that such laws be uniform, but our Federal Government is one of the enumerated powers and the maintenance of the authority of the States over matters purely local is as essental to the preservaton of our institutions as is the conservation of the supremacy of the Federal Government, in all matters intrusted to the nation by the Federal Constitution. The power of the States to regulate their purely internal affairs by such laws as seem wise to the local authority, is inherent and has never been surrendered to the General Government.

"Thus the act, in a twofold sense, is repungent to the Constitution. It not only transcends the authority delegated to Congress over commerce, but also, exerts a power as to purely local matters to which the Federal Authority does not extend."

If there is any certainty in the constitutional law of this country, this holding conclusively disposes of the pretense that the Congress of the United States may regulate the drilling and operation of oil wells on lands held in private ownership within the States. The only provision in the Constitution which would sustain any authority would be the commerce clause, and it is here laid down that this clause does not include that power. On the contrary, it is specifically held that these are matters of local concern, and, therefore, subject to State rather than to Federal regulation. It is needless to enter upon a discussion of the fourth proposition relating to the reserve powers of the States. That question also, specifically, is settled by the Child Labor cases.

State Power

If, then, the power to regulate the business of producing oil resides in the states and not in the National Government, by reason of its purely local aspect and significance, and if eventually it shall be the will of the industry to invoke statutory regulations in the direction of conservation, and to prevent the extreme and uneconomic fluctuations in the supply of its raw material which has ever characterized the business, the inquiry which logically follows involves the scope of state power in this respect. What measure or measures would be within the police power of the state? And at what point in this connection would the police power have to yield to the private property guaranties of the fourteenth amendment to the Federal Constitution and of the constitutions of the states? Numerous conservation statutes have been adopted by the oil-producing states. Most of these cover the simpler phases of conservation. On the other hand, some of the more recent enactments are far-reaching in their application. Keeping in mind, however, that the two points emphasized throughout this paper are overproduction, and the conservation of petroleum in its broadest aspect, it may well be doubted if there is any statute in existence inadequately designed to accomplish these two purposes. Therefore, if legislation is the remedy, we must look to the future for appropriate enactments rather than depend upon statutes already in force. Nevertheless, a survey of conservation measures adopted in the past



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will establish the point of view from which possible future legislation, relating to this subject, should be considered. To this task, we now assign ourselves:

From Water Intrusion

A. The simplest and yet one of the most important conservation statutes is the one designed to protect oil and gas strata from fresh and salt water intrusion. It is interesting to observe that the oil business was 20 years old before the Pennsylvania Legislature, in 1878, was aroused to the necessity of preventing the intrusion of water into the producing formations. Experience then was so limited that fresh water and oil sands alone were dealt with. No provision was made for the protection of gas-bearing sands, nor to prevent the infiltration of salt water. In 1879, the New York Legislature enacted a conservation statute identical with the one adopted in Pennsylvania. These two statutes covered abandoned wells only. Operators, upon abandoning their wells, were required to plug them to prevent fresh water from penetrating the oil-bearing rock. Ohio enacted its first conservation law in 1883. Its operation was limited to the exclusion of fresh water from the oil sands, and no provision was made for the protection of gas-bearing sands, but a new element was introduced: Operators, before drilling into the oil-bearing sand, were required to case their wells so as to prevent fresh water from penetrating the oil sand. Although West Virginia had been an oil-producing state for many years prior to 1891, it was not until that year that the legislature of that State adopted its first conservation law. Under the statute, an operator, upon abandoning an oil or gas well, was required to plug the same to protect the oil and gas sand from fresh water. Later, all of these states enlarged the scope of their statutes designed to protect the oil and gas-producing formations from water infiltration. As the business of producing oil extended to other states, and the need for similar conservation measures became apparent, statutes of similar import were adopted. The citations under the note just indicated are progressive. As experience grew, former statutes relating to the subject were repealed, amended, or enlarged. The statutory law relating to water intrusion may be thus epitomized: (1) Before drilling into the producing formation, an operator is required to case off all water. (2) Before abandoning an oil or gas well, the operator is required to plug the well in a specified manner, frequently under the direction and supervision of a state official, to prevent the penetration of the producing strata by water. (3) A violation of the statute is declared a misdemeanor and punished accordingly. (4) As a further remedy, the owner or lessee of adjacent or neighboring land underlaid by the same deposit may enter and plug the well if the operator controlling the same fails or neglects to do so, the statute providing that in such circumstances the expense of plugging may be recovered from the delinquent operator. Some of the more recent enactments delegate to some conservation agency of the state the power to prevent injury to the producing formations by water infiltration. In several jurisdictions, prosecution under these statutes have been upheld. Moreover, the right of the adjoining owner to enter and plug an abandoned well and to recover the expense thereof has been upheld. Even at common law, a neighboring lessee may recover damages from an operator who fails to plug a well to prevent water intrusion and where that result ensues. The constitutionality of a statute designed to protect producing formations from water has never been raised—probably for the reason that this is a clear exercise of the police power. A statute of this sort is nothing more or less than a statute to abate a private nuisance, on the principle that no man may so use his property as unreasonably to injure the property of another. Such would be the obvious effect of any act of an operator that would result in water penetrating an oil and gas formation, held in common by him and his neighbors.

Waste of Natural Gas

B. Treating the matter chronologically, the second type of conservation statute was that designed primarily to prevent the waste of natural gas. A consideration of these measures and of the decisions of the court applying them will provide a background for an inquiry into three important questions which control the whole subject of conservation laws: First, we must determine whether the police power regulating the drilling and operation of oil wells rests upon the correlative rights and obligations of operators in the same pool, or upon the broader foundations of the general welfare. Secondly, if the basis for the exercise of police power in this connection is the correlative rights and obligations of the operators in a common pool rather than the general welfare, then how far may regulations go? Should it be confined to the prevention of waste, or can it bring about a proportional taking by the operators from the common pool? Third, is there such intrinsic difference between natural gas and petroleum that statutory regulations involving the former substance might be justified where a similar regulations involving petroleum might be within the condemnation of the private property guaranties of the fourteenth amendment and of the state constitution. The Indiana gas conservation statutes, the decisions of the Supreme Court of that state, and the holding of the Supreme Court of the United States in Ohio Oil Co. v. Indiana, shed an interesting light on these questions.

It is impossible to understand the Indiana gas legislation and the decisions in relation thereto unless we have a definite appreciation of the economic conditions then existing in Indiana which brought about the statutory enactments hereinafter to be considered and clearly influenced the court of that jurisdiction in their decisions in this regard. Prior to 1886, while the people of the State of Indiana were engaged in manufacturing to a limited extent, strictly speaking, Indiana was classed as an agricultural state. Beginning at the time indicated, and expanding with remarkable rapidity, one of the largest and most important gas fields ever discovered was developed in about nine counties of central Indiana. Historians of Indiana speak of the "natural gas craze" which prevailed in that State beginning in 1886 and ending about 1900. An economic revolution similar in many respects to the extraordinary development of Manchester and Leeds in England following the advent of steam power and general use of machinery, and the introduction of the factory system, ensued. Factories and manufacturing plants of every sort, size, and description, attracted by a cheap and efficient fuel, moved into the gas belt from nearly every section of the United States. Local capital, enthused over the prospects, built numerous other manufacturing establishments in the same locality. Villages became populous towns, and the towns became cities. These communities, in less than a decade, increased their population from two to fifteen fold. In the meanwhile, the larger cities and towns in Indiana, outside of the gas belt, were piped for natural gas for domestic purposes. The state capitol and all of the other large state institutions were equipped for its use. The people of Indiana actually came to believe that their whole industrial system and, in a somewhat less degree, their general prosperity and well-being, were dependent upon natural gas and upon its conservation for as long a period as possible.

Just prior to 1889, a large pipe line for the transportation of natural gas was constructed from the Indiana gas belt to the city of Chicago for the purpose of marketing natural gas in that important metropolis. A use of this nature threatened the prosperity of the Indiana manufacturing centers. Accordingly, that year Indiana adopted its first conservation measure. The statute prohibited two things: Primarily, the transportation of natural gas by pipe line beyond the boundaries of the State; and, secondly, the waste of natural gas by whatever means. The transportation feature of the statute was so clearly unconstitutional as an unlawful interference with interstate commerce that this provision promptly was so held by the Supreme Court. But the people were not to be denied. At the en-

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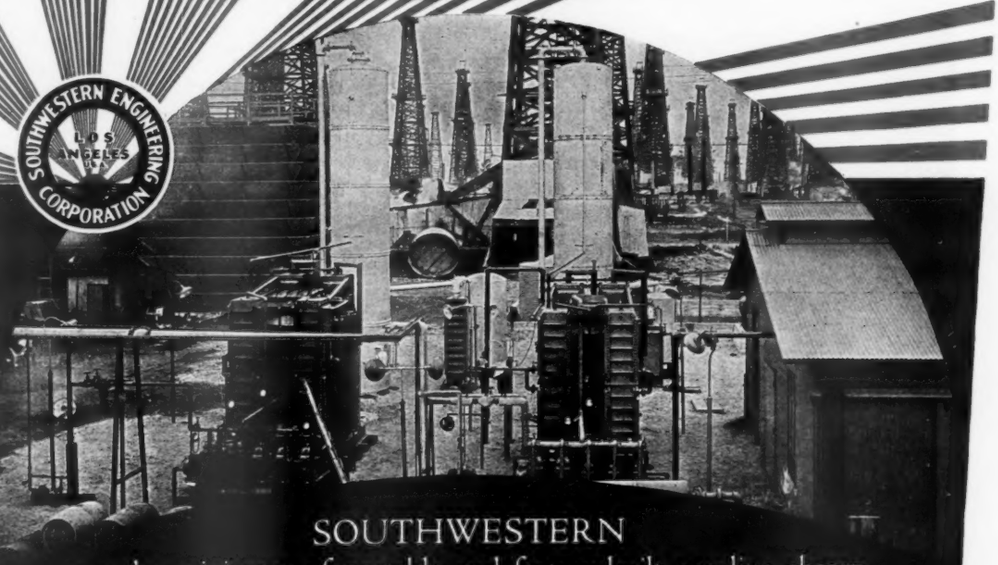

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suing session of the legislature, it was sought by indirect means to do what had already been judicially condemned. It was enacted that gas could not be transported by pipe line at a pressure in excess or 300 pounds per square inch, nor otherwise than by the natural pressure of the gas flowing into the wells. A further provision was added to the effect that the flow of a natural gas well, or the increasing or maintenance of the flow of natural gas through pipe line could not be increased by any artificial process or appliance. These physical impediments absolutely prevented the piping of gas beyond the boundaries of the State and, although it was pointed out in a vigorous dissenting opinion that the underlying purpose of the legislature was to prevent the piping of gas to points outside the State, the constitutionality of this statute was upheld on the ground that the statute was a regulation of a dangerous agency and, therefore, within the police power of the State.

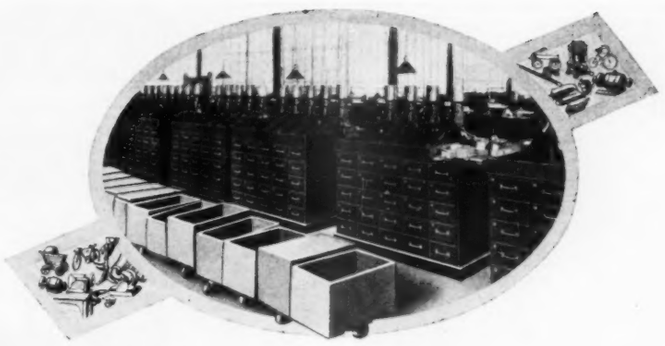
Flambeau Lights

At the same session of the legislature, it was provided that the use of natural gas for illuminating purposes in flambeau lights was a wasteful and extravagant use thereof, and dangerous to the public good, and the practice was prohibited. This is an instance of legislative fiat declaring the use to which private property may be put, and will receive more extended treatment later. In the meanwhile, petroleum was discovered in a formation which underlaid Indiana's prolific gas-bearing sand. Operators interested in oil production only, while drilling to the greater depth for oil, would permit large quantities of gas to go to waste. In the modern view, the practice was indefensible and economically unsound. In this situation, the State of Indiana enacted another police measure which takes its high importance from the fact that its constitutionality was questioned in the most celebrated oil conservation case ever decided, Ohio Oil Co. v. Indiana. This statute was passed in 1893 and provided that neither oil nor gas should be permitted to flow or escape into the open air for a period longer than two days next after discovery. After this period, the substances were required to be safely and securely confined in the well, pipes, or other receptacles. Later, the penalty for a violation of this statute was enlarged. When the Indiana gas field was so depleted that it was physically impossible to transport natural gas beyond the boundaries of the State, and at a time when the pressure and volume of the gas supply had so declined that gas could not be piped to Indiana cities outside of the gas belt unless the act of March 4, 1891, prohibiting pressure in excess of 300 pounds per square inch and prohibiting the production of natural gas by artificial means, was repealed, the legislature took that action. This recital of economic conditions then prevailing in Indiana, and of the legislative history of the period relating thereto, clearly should demonstrate that the Indiana conservation statutes were the result of what was conceived to be a great public emergency, involving in a very high degree the welfare and prosperity of the people of the State. It is just as obvious that the critical economic condition growing out of the waste of natural gas had an important, if not controlling, influence upon the Supreme Court of Indiana in its holdings in relation to the conservation laws of that State. In prosecutions under the statute requiring the confinement of gas two days after discovery, the immense importance of the substance to the people of Indiana was stressed, and it was held that the purpose of the statute was to conserve this natural resource for the welfare of the people of the State. Such precisely was the attitude of the court in a case involving a prosecution for the burning of natural gas in flambeau lights. Then came the decision of the Supreme Court of Indiana in State v. Ohio Oil Co. Here, the oil company was operating for oil which was found in a deeper stratum, and permitted gas to go to waste while operating for oil, contrary to the conservation statute now being considered. The State, by its attorney-general, brought this action to restrain the waste of gas. The defendant claimed that it was interested in oil production solely; owned the right to produce the oil; that it could not produce oil without wasting the gas; and that the statute amounted to a taking of property without due process. To meet the position that the statute constituted a taking of property, the court declared the extraordinary rule that there was an absolute analogy between natural gas and wild animals and fish, and that, accordingly, before the substance was reduced to possession, the State in its sovereign capacity was the proprietor. If this principle were sound, the power of the State to regulate the taking of natural gas was unlimited. The outstanding significance of this case lies in the fact that the notion of correlative rights and obligations among operators in the same pool was completely ignored, the court grounding its decision squarely on the proposition, that the statute was designed to promote the public welfare. The concluding language of the opinion is interesting: "We, therefore, conclude that the facts stated in the complaint make a case of public nuisance which the appellant has the right to have abated by injunction." Such was the point of view of the United States Circuit Court for Indiana in a case involving a prosecution under this same statute, the court, after referring to the statute, saying: "Its protection concerns public and not private rights. It concerns the whole welfare of the State. The penalty is inflicted for the violation of a statute enacted to secure public and not private rights.

Other Conservation Cases

The other Indiana gas conservation cases, in effect at least, were decided on the same principle. This attitude of the Indiana court rises to high importance because eventually it must be determined whether a state may regulate the business of producing oil, by reason of the correlative situation of operators, or upon the broader ground of public welfare. This brings into view the decision of the Supreme Court of the United States in Ohio Oil Co. vs. Indiana, which stands in direct opposition to the holding of the Indiana court that the Waste Statute under consideration was to abate a public nuisance. The case before the Supreme Court of the United States was determined on the pleadings, the trial court having overruled a demurrer to the State's complaint and sustained a demurrer to the Oil Company's answer. The following allegations in the complaint of the State are material: (1) The overwhelming importance of the gas supply of central Indiana to the people of the gas belt in particular, to the people of the State generally, and to the State itself as the proprietor and custodian of the public institutions which were using gas for light and fuel. (2) That the gas was in one vast reservoir where it percolated freely, and that the taking or wasting of gas from any place occupied by the reservoir reduced correspondingly the common supply. (3) That the defendant while operating for oil was wasting gas, and that this waste unless restrained would so reduce the pressure in the reservoir that salt water would visit the formation, and greatly injure or completely destroy the supply. The Oil Company in its answer rested upon the following allegations: (1) That it owned leases covering part of the territory in dispute and had the right to produce oil by virtue thereof. (2) That it was engaged in the oil business exclusively and had no plant or equipment to take care of natural gas. (3) That it had to drill through the gas formation to find oil. (4) That it used the gas coming from its wells to raise the oil, and that this was the usual, natural, and ordinary method of producing oil. (5) That it was impossible for it to produce oil without wasting the gas that came from its oil wells, as alleged in the State's complaint.

Upon these premises, the Oil Company contended the statute had the effect of preventing it from producing oil, and that this amounted to a taking of private property in contravention of the Fourteenth Amendment. The constructive thought in the court's decision to the contrary is that it completely repudiated



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A battery of Hoover Automatic Gauging Machines is shown above. These machines are so designed and operated that, at controlled intervals, the balls being gauged, are fed onto a pair of inclined blades, skillfully lapped and set to definite standards. On these, the actual measuring takes place.

These blades parallel each other, but taper down to a smaller opening at the ends farthest away from the place balls enter. A Master Set, passed by the U. S. Bureau of Standards as absolutely perfect as to size, are used in setting the blades, so that as balls pass over them, they are sorted into five tolerances: those absolutely true to size and those over and under size. This gauging is held within .00005".

Each ball passes down the blades until it comes to the location where its diameter corresponds exactly to the opening between the blades intended for it. Here it drops from the blades into a tube and travels to a drawer that collects only balls of precisely the same size.

Such elaborate care is yet another reason why "Hoover" and "Quality" have become synonymous, a fact demonstrated by the demand for Hoover Steel Balls by the great majority of ball users today.

What Does This All Mean to the Oil Industry?

Out of millions of Hoover Balls used in working barrels during the past six years, not a single one has given cause for complaint. Evidence like this means something. Hoover check valve balls wear and wear—*and wear.*

This is twelfth of a series of stories explaining the manufacture of Hoover Steel Balls

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Houston Pipe Line Company's Refrigio Texas compressor station, pictured below, contains nine Cooper 170 horse power gas engines driving compressors.

A 7000 Horse Power Cooper

Houston Pipe Line Company's Edna Texas Compressor Station, pictured above, was originally built with six one thousand horse power Cooper gas engine driven compressors. The seventh unit is now being added. The auxiliary power is furnished by two Cooper 190 horse power twin

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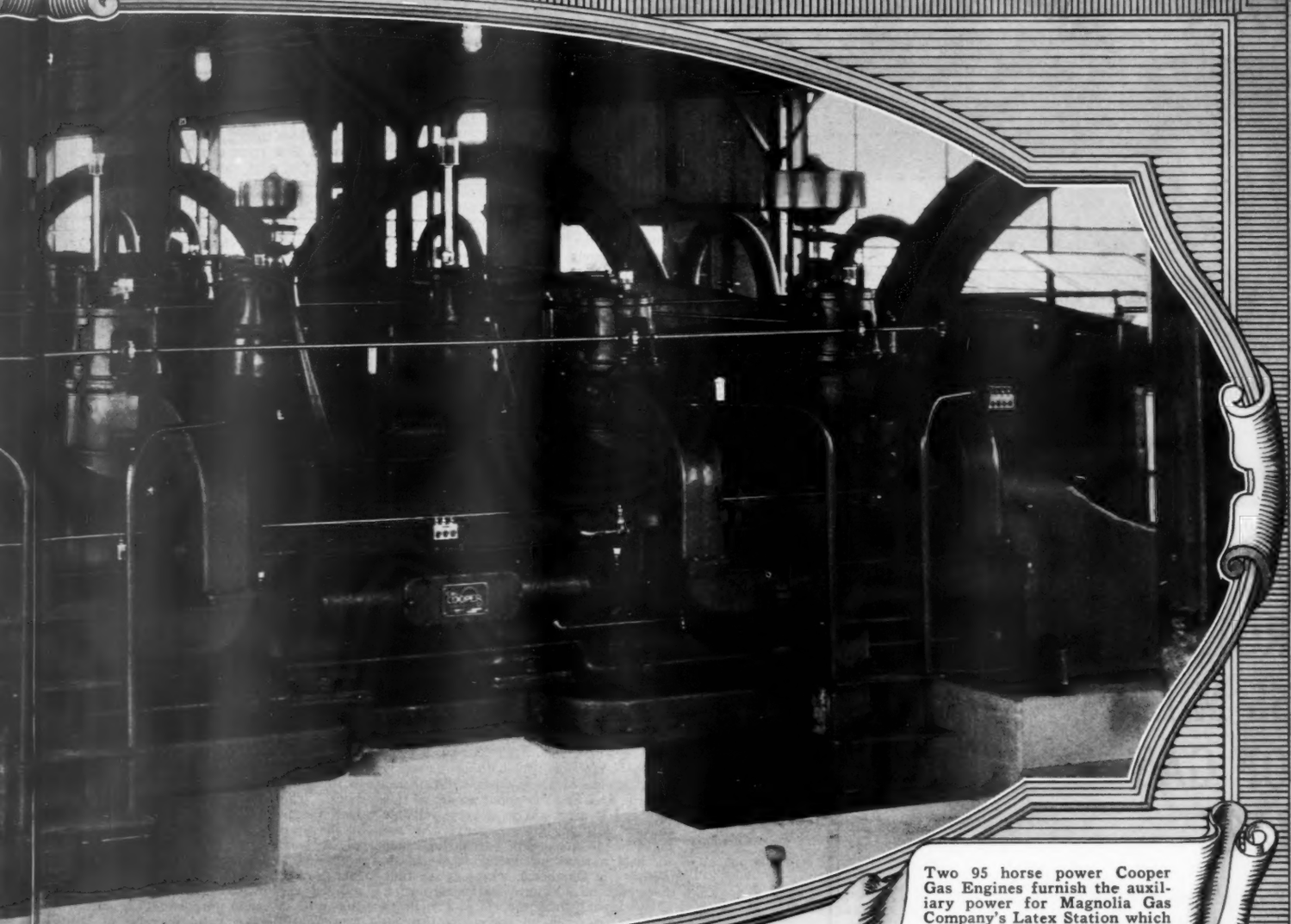
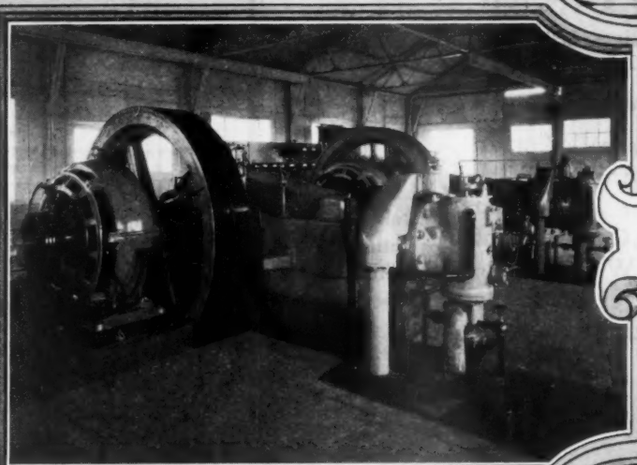


Two 95 horse power Cooper Gas Engines furnish the auxiliary power for Magnolia Gas Company's Latex Station which contains seven 1000 H.P. Cooper units.

Recommendation For Engines

engines direct driving electric generators.

The number of similar installations being made this year with these same size engines is a many times more powerful recommendation for Cooper gas engines and compressors.



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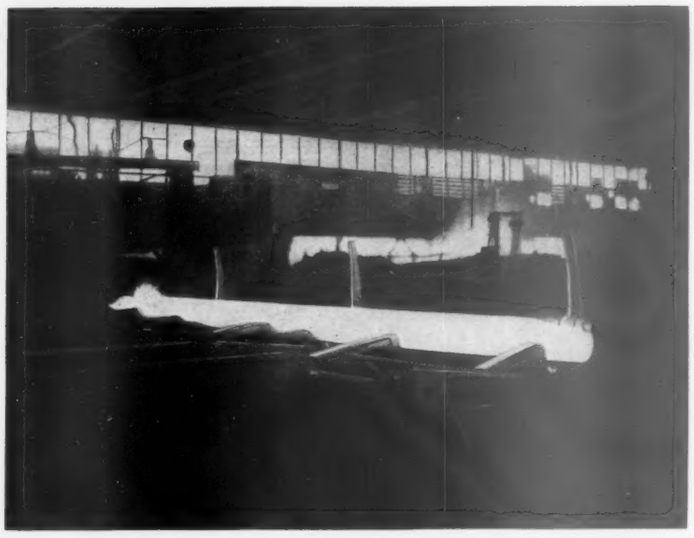

ROLLING 55 MILES OF GAS LINE

This shows a mill operation—the welding end of Republic's No. 2 lapweld furnace.

A length of 8 5/8" O.D. Gas Line Pipe has just been delivered from the welding rolls.

This pipe was rolled on an order for 55 miles of Gas Line for the Petroleum Exploration Company of Sistersville, W. Va. The line will deliver gas to the City of Lexington, Kentucky.

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the position of the Supreme Court of Indiana to the effect that the purpose of the law was to abate a public nuisance. The Supreme Court of the United States, basing its holding on the proposition, that owing to the peculiar nature of the property dealt with, the statute was one to abate a private nuisance, that is, to protect all of the surface owners from waste of their common property, the oil and gas deposits. Finally, then, the following conclusions are deducible from the gas conservation laws of Indiana, and from the decisions of the courts in relation thereto: (1) That an economic emergency brought about the enactment of those measures and tempered all of the decisions of the State courts in regard thereto. (2) That the Indiana State courts upheld these police laws on the ground of the public welfare, disregarding completely the correlative situation of the operators interested in the same pool. (3) That the Supreme Court of the United States rejected this view of the case and upheld the statute as a proper exercise of the police power to abate a private as distinguished from a public nuisance. Other oil-producing states, in one form or another, adopted both types of the Indiana conservation laws; namely, that prohibiting the use of flambeau lights; and the one preventing the escape of oil or gas into the open air after a designated period from discovery.

The Ohio and West Virginia statutes, cited in the preceding note, qualify the strict requirements of the Indiana statute. It is here provided that the statute prohibiting the waste of gas shall not apply to any well while it is being operated as an oil well. In other words, an oil operator could permit natural gas produced from oil wells to go to waste during the time he was producing oil therefrom. Kansas also put a proviso to its waste statute. It was here declared that the gas waste statute did not apply during continuous drilling, that is, drilling into deeper formations.

Common Purchaser Provision

C. A type of conservation statute is the so-called common purchaser provision applicable to concerns both transporting and purchasing petroleum. Oklahoma was the first State to adopt an act of this sort and it grew out of a very palpable abuse. A pipe line company, also engaged in the business of purchasing crude oil, held a small producing lease in the Glenpool in Oklahoma, where at the time there was no adequate marketing outlet. This company produced its own wells to capacity, ran the oil therefrom through its own pipe line at a time when its neighbors were able to dispose of but a small part of their production. Owing to the location of the pipe line company's wells, it was actually producing and appropriating a part of the oil of its neighbors. Accordingly, it was enacted that any concern owning or operating a pipe line for the transportation of crude oil, and, likewise, engaged in the business of purchasing crude, should be deemed a common purchaser, charged with the duty of purchasing oil from all producers having access to its pipe line without discrimination. If it could not purchase all oil offered it, it was to buy ratably, and its own production was to be subjected to the same treatment as the production of any other operator. Later, a somewhat similar provision was adopted by several other states in relation to oil. A number of states have a common purchaser law in relation to natural gas.

The constitutionality of these common purchaser laws has never been brought into question. It is difficult to perceive on what theory any agency, unless it be a public utility, could be required to purchase oil or gas from any particular person. It would infringe upon both the liberty and property provisions of the due process clause. On the other hand, it is not equally clear that a statute designed to prevent a pipe line purchasing company from running more than its proportion of the total production of a particular pool when there was no outlet for the entire production of the pool would be unconstitutional. We here distinguish between a statute requiring the purchasing of crude oil in specified manner and one simply limiting the production of an agency having an advantage over its neighbors in taking oil. In brief, the latter might be a valid application of the doctrine of correlative rights among producers in the same pool.

Oklahoma Gas Statute

D. A number of states have statutes to the effect that a gas producer may take a specified percentage only of the open flow production of his wells. The provision of the Oklahoma statutes is as follows: "It is hereby prohibited from taking more than 25 per cent of the daily natural flow from any gas well or wells unless for good cause shown under the exigencies of the particular case. The Corporation Commission shall establish a different percentum under the prescribed rules and regulations therefore. If the purpose of these statutes is to hold the pressure on the gas-producing sand for as long as possible to prevent water intrusion which might follow a substantial decline in pressure, the enactments clearly would be constitutional as a proper exercise of the police power. A greater taking by one producer might result in injury to the gas-producing properties of his neighbor. On the other hand, if the purpose of the statute is to bring about a proportional taking on the part of all operators interested in the common deposit without reference to a possible or probably injury to the producing formation, a more difficult question is presented.

E. A group of statutes closely related to the ones just alluded to are those prohibiting an oil or gas operator from taking more than his proportion of the potential production of the pool where there is no market for all of the production therefrom. These acts are leveled against the operator and not against the pipe line purchasing company. In each of these statutory enactments or regulations, the excess of production over the market outlet is defined as "waste." It will be more appropriate to discuss the constitutionality of these measures in another connection.

Carbon Black Laws

F. Another class of gas conservation statutes which have received the attention of the court are the so-called carbon black laws. The use of natural gas for the manufacture of carbon black is prohibited in the State of Wyoming, where the supply is located within 10 miles of an incorporated town or industrial plant, unless the heat contained therein is actually applied and utilized for other manufacturing or domestic purposes. This statute was upheld as a valid exercise of the police power of the State by the Supreme Court of the United States, on the ground that it prevented waste. An identical statute adopted in Montana was held violative of the due process clause of the State Constitution by the Supreme Court of that State, the court refusing to follow the decision of the Supreme Court of the United States in the Walls case. While Oklahoma has no statute specifically dealing with the use of natural gas to manufacture carbon black, it is provided that the Corporation Commission, the conservative agency of the State, shall have the power to adopt rules and regulations to prevent the wasteful utilization of natural gas. Under this statute, an order of the Corporation Commission prohibiting the use of natural gas for the manufacture of carbon black was upheld as a regulation within the jurisdiction of the commission, the court also holding that the act itself was valid exercise of the police power of the State. Here, again, the necessity for conserving natural gas for the welfare of the people of the State was emphasized. In Louisiana, the Department of Conservation is vested with authority to determine the manner and extent that natural gas may be used in the manufacture of carbon black. The Supreme Court of Louisiana intimates that the two statutes referred to in the note just indicated are constitutional. Arkansas puts an absolute prohibition on the use of natural gas for the manufacture of carbon black, the statute itself declaring such use to be a public nuisance. Under a Texas statute authorizing the Railroad Commission to promulgate rules and regulations to pre-

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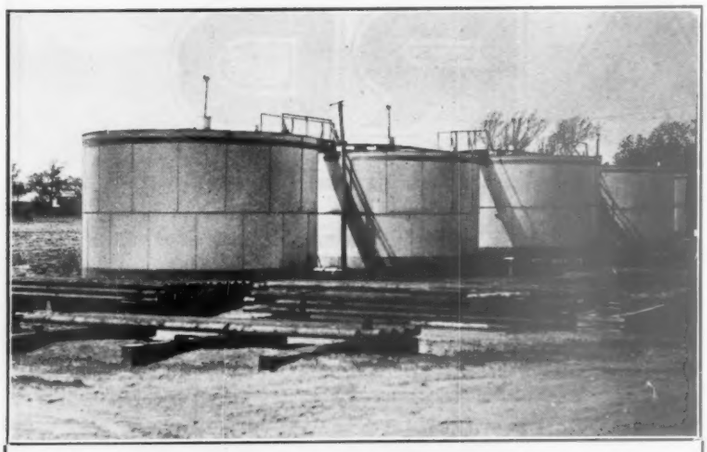

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vent wasteful utilization of natural gas, the Railroad Commission of that State, in Rule No. 41, prohibits the use of natural gas for this purpose where there is any reasonable expectation, present or in the near future, of the utilization of the particular gas supply for domestic or manufacturing purposes. Wherever these carbon black statutes have been considered by the courts, they are sustained from the viewpoint of the public welfare in the direction of conserving a valuable natural resource rather than upon the ground of correlative rights.

G. An interesting type of the more modern conservation statute are those in effect in Wyoming, New Mexico and Montana. Under these stautes, a state agency is provided for with power to prescribe and enforce rules and regulations governing the drilling, casing, and abandonment of oil and gas wells, and to prevent the waste of oil and gas therefrom. The rules and regulations to be applied are those promulgated by the Bureau of Mines or by the Secretary of the Interior in relation to public lands of the United States, and such additional rules and regulations as the particular state agency shall prescribe. Here is delegated an all-inclusive power to control the drilling, casing, and abandonment of oil wells, and to prevent the waste of both oil and gas.

Tendencies of Recent Laws

H. Again stressing the importance of distinguishing between the two legislative powers which, in view of constitutional restraint, may or may not be exercised in this connection; namely, the power, by statute, to abate a private nuisance, the foundation for which lies in the correlative situation of operators in the same pool; and the power, by statute, to conserve oil or gas for the general welfare of the people of the State, we are now brought to the more comprehensive and detailed enactments which for the time being seen to characterize the effort toward legislative conservation. The following tendencies of the latest laws upon the subject are clearly manifest: Gas conservation statutes precede measures relating to oil. Moreover, usually separate enactments are resorted to covering the two substances. And, finally, the solicitude of the lawmakers attaches more to the conservation of natural gas than to petroleum. As these later statutes will receive critical attention hereafter, all that need be done at the moment is to identify them. All of the enactments just referred to are characterized by one uniform principle: Doubtless, appreciating the difficulty, if not the impossibility, of regulating a highly technical business by hard and fast rules, these statutes provide for conservation in general terms, and vest in an administrative agency of duty of prescribing rules and regulations to carry out the legislative purposes. Such precisely is the character of the recent conservation measures adopted in Montana, Wyoming, and New Mexico, which have already been referred to.

The Operator's Property Rights

Eventually, our inquiry must be reduced to a narrow compass involving the extent to which a state may control the drilling and operation of oil wells by statute without offending the due process clauses of the Fourteenth Amendment to the Federal Constitution and of the State. With this object in mind, it will be helpful if we here indicate the property rights of oil operators arising from their leases and such decisions as either uphold the complete freedom of the operator to develop his lease as he will, or, on the contrary, which place limitations on his action in this regard. Setting aside for the time being all questions of legislative control, an oil operator, by virtue of the interest or estate vested in him under his lease, is possessed of certain rights and is subjected to certain burdens invoiving the development and operation of the particular property, unless in the lease instrument there is some express stipulation to the contrary: (a) He may drill as many wells on the lease premises as his business judgment commands. (b) He may locate these wherever he will on the lease premises. (c) Ignoring for the moment the implied obligations to develop, hereinafter referred to, he may drill all his wells just as promptly as his judgment dictates. (d) He rests under an implied duty to drill such wells as may be necessary to protect his lessor from drainage by operators on adjacent lands. (e) When he once finds production in paying quantities, he is required, by implication of law, to continue to drill as long as paying wells are found until the property is fully developed. (f) He has the privilege, if not the duty, arising from his implied contractural relationship with his lessor to produce his wells to their full capacity at all times. (g) To these ends, he may employ such means and instrumentalities as are available, provided the particular practice does not unreasonably injure the producing lands of his neighbors in the same pool. (h) Subject to his royalty obligation, he is vested with ownership in all of the oil and gas which he may produce from wells located on the land covered by his lease, although part, or even the greater portion, thereof may come from adjacent or neighboring land.

The propositions set forth above are so conclusively settled that the citation of authorities to sustain them would be a needless task. Owing, however, to the correlative predicament of operators in the same pool, decisions touching this phase of the subject should be illuminating. It is said: "Every land owner or his lessee may locate his wells wherever he pleases, regardless of the interest of others. He may distribute them over the whole farm or locate them only on part of it. He may crowd the adjoining farms so as to enable him to draw the oil and gas from them. What, then, can his neighbor do? Nothing, only go and do likewise. He must protect his own oil and gas. Ordinarily, cases dealing with the correlative rights of operators involve natural gas and not petroleum. Two circumstances plainly account for this. In the first place, the migratory propensities of natural gas are infinitely more pronounced than is true of oil. Therefore, the acts of one gas lessee are much more likely injuriously to affect the producing lands of his neighbor in the same pool than would be true in the case of oil. Secondly, natural gas when discovered must either be confined in the reservoir or put to immediate use. It is not practical to store it on the surface; and, if it cannot be utilized at the time of production, it escapes into the air. The dissipation of natural gas in this fashion clearly affects the adjacent owner in two respects: It either reduces or has a tendency to reduce the pressure upon the formation, and in that way brings about the danger of water intruding into the gas sand which will impair or perhaps destroy the productivity of the reservoir. In addition, the actual waste of natural gas by permitting it to escape into the air reduces in some degree the common supply available to all the operators having access to the deposit. It is on these grounds that the courts have been inclined to guard the correlative rights of gas lessees to an extent never encountered in relation to oil.

Doctrine of Natural Flow

The first line of cases appropriate here is that involving the instrumentalities which a lessee may employ to increase the production of his wells. The principle might be referred to as "the doctrine of natural flow." The general rule is that a lessee may employ any instrumentality to produce. This statement, however, is qualified by the further proposition that the lessee may not follow a practice which will produce waste in the sense that the substance involved is being actually dissipated. Here, in relation to natural gas, at any rate, an operator in the same pool, independently of statute condemning the practice, may enjoin the injurious operation. These holdings rest on two grounds: First, the actual dissipation of the gas without utilization reduces the pressure in the formation, thereby permitting an earlier intrusion of water into the gas sand than otherwise would follow. Secondly, because the waste to that extent or to some extent depletes the supply available to all the superincumbent surface owners. This conception of the depletion of the common reservoir through the acts

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of a lessee on his own land to the detriment of his neighbors may possess some merit in respect of natural gas, because of the capacity of the fluid to migrate freely; but it is extremely doubtful if this doctrine can be extended to an oil deposit.

Police Power Versus Due Process

Again recurring to the thought, that the solution of all the questions to be examined here involves the contrasting of the liberty and property guaranties of the Federal and State Constitutions with the police power of the States, a brief allusion to certain fundamentals characterizing the two conceptions is necessary. It is both an economic and legal principle that the highest attribute of property is the right in the owner to use and enjoy the subject thereof according to its peculiar nature and adaptiveness. In Buchanan vs. Warley, Mr. Justice Day, speaking for the court, said: "Property is more than a mere thing which a person owns. It is elementary that it includes the right to acquire, use, and dispose of it. The Constitution protects these essential attributes of property." In Pennsylvania Coal Co. vs. Mahon, Mr. Justice Holmes said: "For practical purposes, the right to coal consists of the right to mine it. What makes the right to mine coal valuable is that it can be exercised with profit. To make it commercially impractical to mine certain coal has very nearly the same effect for constitutional purposes as appropriating or destroying it." Centering attention in the uses to which an oil property may be put by virtue of the lessee's interest or estate, as we have outlined them previously, it follows that these are the particular attributes of property which are within the protection of the due process clauses.

Turning to the other side of the question, the courts now ascribe the broadest possible operation to the police power of the States: "It may be said, in a general way, that the police power extends to all the great public needs. Police power not only includes regulations to promote the health, peace, morals, and good order of the people but also the power to legislate so as to increase the industries of the State, develop its resources, and add to its wealth and prosperity. We hold that the police power of the State embraces regulations designed to promote the public convenience or the general prosperity as well as regulations designed to promote the public health, public morals, or public safety." It is also held that the concept, police power, is based upon the principle, that every person ought so to use his property as not to injure his enighbor's, and that private interest must be made subservient to the general interest of the community. Local conditions should be taken into account in determining the extent of the police power. The scope of the police power depends upon conditions as they change from time to time. A machine which would be held invalid in a state of society or under economic conditions previously existing might be held constitutional by reason of a change in circumstances. The determination of the local Legislature and of the highest court of the State that the public policy of such State demands a police measure of a particular type will have great weight with the Supreme Court of the United States if called upon to decide its constitutionality, because of their familiarity with the needs of the particular jurisdiction. If the question between the taking of property and a proper exercise of the police power is fairly debatable, the statute will be upheld. Where a strong and preponderant opinion prevails in the State, that a particular measure is greatly and immediately necessary to the public welfare, that factor has an important influence in establishing the limitations of the police power in a particular case.

Notwithstanding all these considerations, the fact still remains that where it is claimed that a police statute of a state impinges upon the due process clause of the Fourteenth Amendment, and where the Supreme Court of the United States is of opinion that the statute too greatly interferes with private property, the will of the local Legislature and the sanction of the highest court of the State alike will be disregarded and the act will be held unconstitutional. If anything, the present tendency of our highest Federal tribunal is to guard more sacredly the rights of private property from the police power of the State than ever before. From 1868 to 1912, 6 per cent of the cases coming before the Supreme Court of the United States, involving State Legislation of a social or economic character were held unconstitutional where the statute was challenged under the due process clause of the Fourteenth Amendment. Between 1913 and 1920, 7 per cent were held unconstitutional. Between 1921 and 1927, 28 per cent were so held.

The Test of Constitutionality

In concluding this discussion, opinion will be ventured upon the constitutionality of certain existing conservation statutes and upon several measures of the same character that have been proposed. This treatment will be entered upon with diffidence because of the complexity of the legal questions that are involved. Standing at the forefront is the overwhelming consideration that there is no fixed or satisfactory standard to determine where the police power of a state ends and where the effective protection of the due process clause begins. The Supreme Court of the United States is absolutely committed to the doctrine that no definite rule can be laid down to determine the limits of the police power of the states. On the contrary, each case is to be decided upon its own peculiar facts and circumstances. To the extent that definite rules upon the question may be deduced from the decisions, they take this form: (a) Whether a police statute offends, due process entirely depends upon the degree in which the act impairs or interferes with property rights. Under the cases here cited, if a regulation goes too far, and if it interferes too greatly with property rights, the statute must yield to the due process clause. (b) The burden is on the party attacking the constitutionality of the particular measure to establish the invalidating fact. (c) If a regulatory statute is clearly arbitrary and unreasonable in its infringement upon property rights, it falls within the condemnation of the due process clause. (d) Even if the ultimate purpose to be accomplished by the statute is legitimate, the regulation of property prescribed thereby must have a direct, substantial, and reasonable relation thereto. Otherwise, it will offend the due process clause. (e) Late decisions evidence a pronounced tendency on the part of the court toward a closer scrutiny of the factual situation when called upon to determine the constitutionality of a police statute. The court will take judicial notice of the facts showing the public need and will attach decided weight to the opinion of scientists and experts, both in regard to the public necessity for the enactment and its probable effect.

Viewing the question in its very essence, the matter comes to this: If, in the judgment of the Supreme Court of the United States, a particular state police statute goes too far in the regulation of private property, or if the effect of the measure upon property rights is arbitrary, oppressive, and unreasonable, or, if the means prescribed by the statute to achieve the legislative purpose are not directly related thereto, or, in their operation, unreasonably, oppressively, or arbitrarily interfere with property rights, the statute will be held unconstitutional under the due process clause. Just here, however, another confusing element intrudes, namely, the conflicting attitude of the members of the Supreme Court when questions of this sort are presented. In the following cases cited in the notes, state police statutes were held violative of the due process clause: Truax v. Corrigan, involving an Arizona statute validating the picketing of places of business; Fairmont Creamery Co. v. Minnesota, involving an act of the State prohibiting discrimination in price between different sections of the State in buying milk, cream, or butter fat; Tyson v. Bantam, involving an act of New York fixing the charge for admission to theaters, and declaring theaters to be clothed with a public interest; Weaver v. Palmer Brothers, involving an act of Pennsylvania prohibiting the use of shoddy in the manufacture of certain articles; Burns Baking Co. v. Bryan, in-

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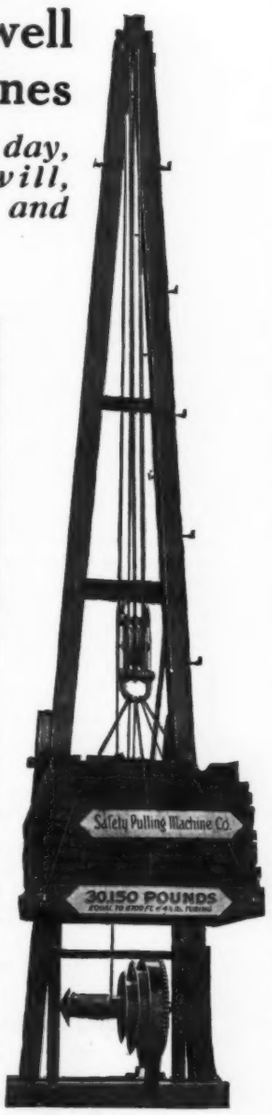

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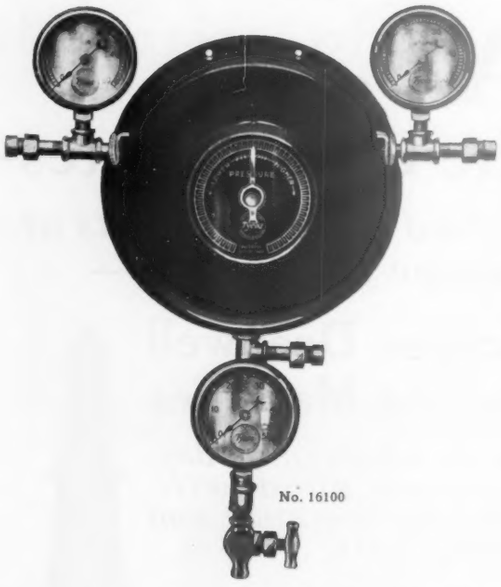

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volving an act of the Nebraska Legislature prescribing the weight of loaves of bread sold by bakers; and Myer v. Nebraska, involving an act in the Nebraska Legislature forbidding the teaching of any language other than English in schools. In the Truax case, four justices dissented; in the Fairmont case, three; in the Tyson case, four; in the Weaver case, three; in the Burns case, two; and in the Myer case, two. Equally impressive are the recent decisions of the court where the constitutionality of state police statutes were upheld. Among these cited in the notes are Levy v. Siegel, involving the New York emergency rental law, and Village of Euclid v. Ambler Realty Co., the first zoning ordinance case. In the Levy case, three justices dissented, and in the Euclid case, four. The same contrariety of judgment appears in the later decisions involving the constitutionality of Federal enactments. In Hammer v. Dagenhart, the original child labor decision, four justices dissented. In Block v. Hirsh, involving the constitutionality of the District of Columbia emergency rent law, Chief Justice White and three other justices dissented. In Atkins v. Children's Hospital, involving the minimum wage law for women in the District of Columbia, Chief Justice Taft and three other justices dissented.

Two Schools of Thought

From these considerations inevitably it follows that two distinct schools of thought are represented in the decisions of the Supreme Court of the United States in cases involving the constitutionality of police measures, designed to promote the social and economic well-being of the people. First, the conservative-minded justices who, in a contest between police power and due process, are inclined to hold the balances in favor of the latter. Secondly, the more progressive minded, whose point of view and mental habits are in the opposite direction. Between these groups are members whose positions in this respect cannot be definitely reconciled. It is into this atmosphere that the industry must project its inquiry as to what conservation measures are or are not constitutional.

Existing Conservation Statutes

It is not proposed to examine all of the conservation measures now in force to determine their validity. Our inquiry will be limited to those acts which are of higher importance and which evidence a tendency on the part of oil-producing states to enlarge the scope of statutory conservation. The constitutionality of the enactments which will be looked into will be tested by two principles: First, that of neighborly conduct, and, secondly, the broader one of public welfare.

1. It is clear from principle alone that any state police statute prohibiting an operator from engaging in practices which would injure an oil and gas formation would be constitutional. Primarily, the enactment would be founded on the ancient rule that no man may so use his land as unreasonably to injure the land of another. Moreover, it is highly probable that a statute of this character would be upheld under the general welfare power. The people would have such an interest in the preservation of these wasting natural resources as to sustain this type of legislation. In its essence, a statute of this sort would abate both a private and a public nuisance. Into this category would fall the plugging statutes, those requiring the casing off of water, and numerous others designed to protect producing formations from injury.

2. It is equally clear, both upon principle and authority, that a state police statute designed to prevent the escape of gas into the air to its consequent dissipation without utilization would be constitutional. The cases cited in the note just indicated diverge in regard to the principle which would sustain a statute of this character. In Ohio Oil Co. v. Indiana, it is held, in effect, that the statute would be one to abate a private nuisance. On the contrary, the Supreme Court of Indiana and the Kentucky Court of Appeals view a statute of this sort as one to abate a public nuisance. Such, also, is the intimation of Hague v. Wheeler, the Pennsylvania case, and of Louisiana Gas & Fuel Co., the Louisiana case. In Walls vs. Midland Carbon Co., Mr. Justice McKenna, speaking for the court, sustained the Wyoming statute involved there on both grounds, although the public concern in the wasting of a valuable natural resource was more emphatically stressed than was the correlative situation of the owners of the gas reservoir.

3. Some state statutes inhibit the waste of both oil and gas. In other jurisdictions, statutes pertaining to waste deal with the substances separately. The enactment now to be considered involves the waste of oil and not gas. And, the question of the constitutionality of a statute prohibiting the waste of oil calls for nice discrimination. All of the conservation decisions announced after Ohio Oil Co. v. Indiana either follow the doctrine of that case, or are decidedly influenced thereby. The exact holding of the Supreme Court of the United States must be tested by its facts. Here, although the statute inhibited the waste of both oil and gas, the substance being wasted was gas. Four things material here were alleged, and, as the case went off on demurrer, the allegations here referred to were accepted by the court as true: (a) It was alleged that all the lands involved were underlaid by a common reservoir. (b) That in this reservoir, natural gas percolated freely from one part to another. (c) That the dissipation or taking of natural gas through wells located anywhere in the reservoir to that extent, or in a substantial degree, depleted the supply common to all of the surface owners. This particular allegation of fact, accepted by the Court as true, is indispensable to a correct understanding of the limitation which must be placed on the rule laid down in this holding. (d) That the acts of the defendant in wasting gas were reducing the pressure in the reservoir which would result in water intrusion, to the injury or destruction of the gas-producing capacity of the reservoir. In brief, this was a gas conservation case, pure and simple, and its application should be circumscribed accordingly. A close scrutiny of the court's opinion demonstrates conclusively that there were two controlling facts: First, the free movement of the gas throughout the reservoir. Second, that when one surface owner wasted gas, it diminished the supply available to all of the other surface owners. In as much as the statute before the court prevented one surface owner from wasting gas, to the obvious and substantial detriment of the other surface owners having access to the reservoir, the court was entirely right in holding that this was a proper exercise of the police power. The purport of the statute was to abate a private nuisance. This view of this all-important holding permits us to test the constitutionality of a surface waste oil statute by the two principles we have stressed from the beginning. The underground habits of the two minerals are essentially different. Ignoring for the time being the function which gas performs in the production of oil, gas migrates freely when the producing formation is penetrated, and oil does not. In the second place, the taking of oil from wells located on one part of the structure does not necessarily deplete the supply accessible to another surface owner. Both of these differences expressly were noted by the Supreme Court of Indiana in a case involving the application of the gas and oil conservation statute of that State. From this, it follows that the correlative situation of the surface owners is not the same in relation to the two substances. In these circumstances, it cannot be stated with assurance that a State police statute adopted primarily to prevent the surface waste of oil would be held constitutional on the ground that it was preventing one land owner from so using his land as unreasonable to injure the land of another. Turning to the other principle, which would support an enactment of this sort, enters the question of the public welfare. All the conservation cases which deal with the subject in this aspect involve gas and not oil. Natural gas, in its very nature, implies locality. Generally, its use is limited to the state where it is produced. It is more likely to be a substantial part of the local economic structure than petroleum,

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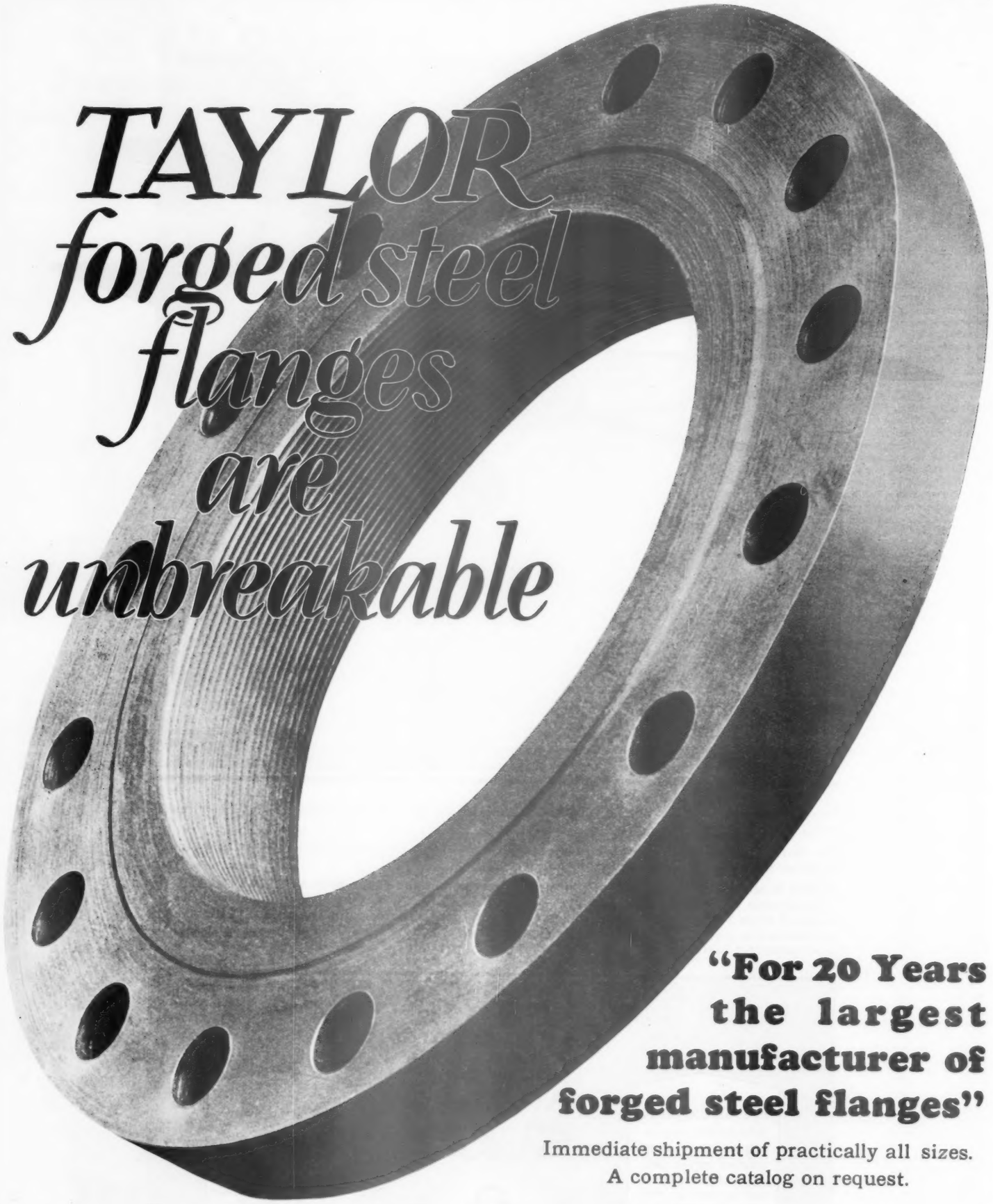

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which ordinarily moves in interstate commerce. It cannot be confined in artificial receptacles to await a future need. It must be kept in the well, utilized at once, or permitted to escape into the air. A gas field, or a gas supply, exhausts much more rapidly than is true of oil. All these considerations are emphasized in the decisions involving the constitutionality of the gas conservation statutes. Finally, then, it cannot be said that there is any direct authority supporting the proposition that an act designed to prevent the surface waste of oil would be constitutional, either on the ground of the correlative situation of the surface owners, or upon the ground of public welfare. To say the least, the point is debatable.

Rights of Owners

4. An unfortunate observation in Ohio Oil Co. vs. Indiana, entirely beyond the issues of the case, tends strongly to confuse all of our well-founded conceptions regarding the correlative situation of operators interested in the same pool. The matter before the court was one of waste and the statute under consideration dealt with that subject only, but in the opinion we find the court saying: "It follows from the essence of their right and from the situation of the things as to which it can be exerted, that the use by one of his power to seek to convert a part of the common fund to actual possession may result in an undue proportion being attributed to one of the possessors of the right to the detriment of the others, or by waste by one or more to the annihilation of the rights of the remainder. Hence, it is that the legislative power, from the peculiar nature of the right and the objects upon which it is to be exerted, can be manifested for the purpose of protecting all the collective owners by securing a just distribution, to arise from the enjoyment, by them, of their privilege to reduce to possession, and to reach the like end by preventing waste." Emphasis must be laid on the dictum to the effect that a statute would be upheld which had no relation to waste, but was designed to equalize production among the operators interested in the same pool. In the Walls case, Mr. Justice McKenna, interpreting the holding in the Ohio Oil Co. vs. Indiana, said: "The State may interpose its power to prevent a waste or disproportionate use of either oil or gas by a particular owner in order to conserve the equal right of other owners and advance the public interest." In Lindsley vs. National Carbonic Gas Co., Mr. Justice Van Devanter, in commenting upon Ohio Oil Co. vs. Indiana, observed: "Because these fluids were inclined to shift about in the common reservoir in obedience to natural laws, one surface owner could not excessively or wastefully exercise his right of tapping the reservoir and drawing from its contents without injuriously affecting the like right of each of the others." A similar deduction is made in West vs. Kansas Natural Gas Co. Centering attention on the thought of proportional taking, there are several state statutes fashioned in one form or another to achieve this result. In Louisiana, the Conservation Commission is empowered to establish rules and regulations for the location and spacing of gas wells, and the amount of gas that may be drawn from any well or wells. Another act passed at the same session provides that the Department of Conservation shall have the power to devise and enforce rules for the spacing of oil wells in any area of the State to suit the needs of each particular locality. In Texas, the duty to make and enforce rules and regulations for the conservation of oil and gas, and to prevent the waste of oil and gas in drilling and producing operations is imposed upon the Railroad Commission. In pursuance of this statute, the Railroad Commission adopted a regulation specifying the location of line and inside wells, the commssion however reservng the power to permit wells to be drilled within shorter distances of one another in order to prevent waste or to protect vested rights. These statutes manifest a legislative tendency to equalize the recovery of oil among operators in the same pool. The constitutionality of the Louisiana statute has never been brought into question. The validity of an order of the Railroad Commission of Texas limiting an operator to 4 wells on a narrow strip of land, when it was his intention to drill 10, was assailed on the ground that the order amounted to a taking of property in violation of the Fourteenth Amendment. The trial judge held that the order did not offend the due process clause. This holding is not sound. An operator, by virtue of his leasehold, may locate his wells anywhere on the lease premises, even though his wells are so located as to drain much or the greater part of their production from adjacent lands. This is a property right of the highest sanctity. Setting aside the question of waste, and the acts of an operator that might injure the producing formations to the detriment of his neighbors in the same pool, legislative enactments depriving a lessee of the right to locate his wells anywhere on the lease premises would clearly constitute a taking of private property without due process of law. In Pennsylvania vs. Mahon (supra), Mr. Justice Holmes said: "To make it commercially impractical to mine certain coal has very nearly the same effect for constitutional purposes as appropriating or destroying it." Such precisely would be the effect of any statute, or order of a conservation agency based on a statute, specifying the number of wells an operator might drill or where they might be located. The drill alone determines the presence or absence of oil at a particular location. Until the sand is actually penetrated, the project is shrouded in uncertainty. A dry hole may be drilled within a single location of a producing well; or a producer may be found within a location from a dry hole; a well of small capacity may be drilled within a few feet of a gusher; or the condition may be reversed. The essence of the operator's entire property right consists in the privilege of drilling as many wells on his lease as he wishes, and in locating them as his judgment commands. A statute of this sort would fail because of the degree to which it impaired the property rights of the operator. In the language of the cases, it would be "going too far;" it would be unreasonable, abitrary, and oppressive in its operation, and, hence, clearly within the condemnation of the authorities.

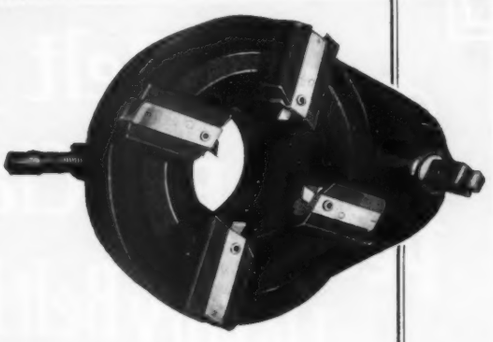
Proportional Taking

5. Another group of statutes which bear a relation to the concept, "proportion taking," are those which restrict the production of gas wells to a designated percentum of the open-flow capacity. If these are to be viewed from the standpoint of proportion taking alone, they are objectionable for the reasons last assigned. If a gas lessee has legitimate use for his gas and is producing without waste, he may take the full capacity of his wells even though it exhausts the field. These statutes, however, may be sustained on another theory; namely, that the taking of an undue proportion of the gas would so reduce the pressure in the formation that an earlier intrusion of water into the gas sand would be induced. On this principle the source of legislative power would reside in both of the elements heretofore considered; namely, the correlative position of the operators interested in the particular field, or the general welfare.

West Considering Subject

6. In passing, it is interesting to observe that the more progressive conservation measures are emanating from the important oil-producing states in the West. Clearly, the law-making bodies there are grappling with the subject. One of the most advanced types of legislation is that prohibiting the wasteful utilization of natural gas. Each of the statutes cited in the note empowers the conservation agency of the particular state to enforce this prohibition through regulations established by it for that purpose. Ignoring the plain contradiction in the meaning of the words, waste and utilization, the constitutionality of the Oklahoma statute prohibiting wasteful utilization of natural gas has been sustained. Here, the court upheld an order of the Corporation Commission declaring the use of natural gas in the manufacture of

(Continued on Page 156)



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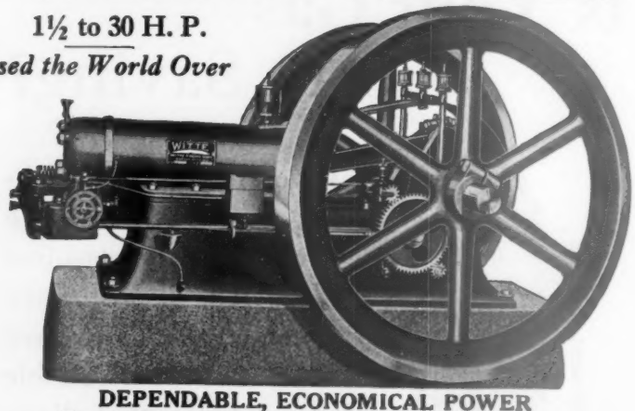

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CENTRAL WEST FIELDS

(Continued from Page 72)

45 feet in the sand. H. E. Schmidt's No. 7 well, 200 feet from the north line and 500 feet from the west line of the Earl Hites farm, only pumped 1 bbl. initial. Sand was topped at 1,442 feet and drilled 54 feet in the sand.

Wells Abandoned

There were 49 old wells reported pulled out and abandoned in Wood County. In Montgomery Township, Onsel Brothers pulled out Nos. 2, 3 and 4 on the Bertha I. Phillips farm, Section 36, and the Saving Bank Co. did the same with Nos. 14 and 16 Sarah Inman farm, Section 14.

In Liberty Township, the Ohio Oil Co. pulled out the following wells: No. 12 J. H. Mitchell farm, Nos. 1, 2, 5 and 6 J. M. Stafford farm, No. 3 George Powell farm, all in Section 2; No. 20 on the J. W. Powell farm, Section 3; No. 1 Eli Stockwell farm, No. 12 Lehman Bros. farm, Section 1; No. 1 W. T. Reese farm, Section 10; No. 1 Homer Brown farm, Section 35. In Section 11, this company pulled out No. 42 D. J. Cory Noe farm, No. 10 Thomas Carr farm, No. 18 S. H. Powell farm, No. 9 George Mercer farm, No. 8 Royal B. Mercer farm, Nos. 4 and 22 John Johnson farm, Nos. 6, 22 and 24 Amelia Spooner west 80-acre farm, and Nos. 4, 8 and 10 Lavina Munn farm.

In Liberty Township, Ogden G. and F. Lee Rouse abandoned No. 4 Richards and Vorhees farm, and Nos. 21 and 24 Frank Stratton farm, Section 2. J. Walter Wells and others pulled out Nos. 2, 5 and 14 Curtis Plowright farm, Section 22. Mattie S. Rouse pulled out No. 22 Pinert & Munn farm, and No. 2 on the George W. Hartman farm, Section 26.

In Troy Township, the Ohio Oil Co. pulled Nos. 2 and 3 Andrew Radoliff farm, Section 24 and D. J. Klingman his Nos. 3, 5 and 6 Foster farm, Section 12.

In Lake Township, D. J. Klingman pulled Nos. 1 and 2 Edward B. Emch farm, and Nos. 2 and 3 Paterson & Bonhnsen farm, Section 35. Emory Herman did the same with No. 1 on his own farm, Section 27.

In Perry Township, Fred M. Sweitzer pulled No. 6 on the Mary Ellen Sweitzer farm, Section 6, and Hattie M. Hamilton and others pulled No. 8 Fred Hamilton farm, Section 1.

In Sandusky County, Scott Township, Winchell Oil Co. abandoned Nos. 10, 11 and 12 Dora Allen Winchell farm, Section 31. The Sun Savings Bank Co. pulled No. 20 O'Farrell farm, and No. 5 John Naugle farm, Section 35. James P. Evans did the same with No. 6 Sadie B. Gschwind farm, Section 33. Homer Blessing and thers pulled No. 4 J. H. Burnett farm, Section 29. The Home Banking Co. abandoned No. 3 E. Schultz farm, Section 28. Homer Blessing and others pulled out No. 3 D. S. Loe Farm, Nos. 11 and 12 E. F. Day farm, and No. 13 Dose Wagner farm, Section 35. In Woodville Township, the Ohio Oil Co. pulled No. 8 H. Gerke farm, Section 12, and No. 1 F. Yeating farm, Section 1. In Washington Township, the Ohio Oil Co. pulled No. 1 Homer Schwartz farm, Section 6. In Jackson Township, L. P. Neiset abandoned No. 11 M. J. Daub farm, Section 6; J. F. Arnold did the same with No. 20 St. Amant & Wooster farm, Section 9 and the Ohio Oil Co. pulled No. 20 William Snider farm, Section 5.

In Oregon Township, Lucas County, the Ohio Oil Co. abandoned No. 3 Brandenberger & Helbing farm, Section 5, and Nos. 1 and 2 F. Clausing farm, Section 4.

In Allen Township, Ottawa County, the Ohio Oil Co. pulled Nos. 1, 2, 5 and 6 G. Stroshine farm, Nos. 1 and 2 H. Stroshine farm and No. 13 Henry Blausey farm, all in Section 2.

Indiana

But two completions were reported from the Indiana Field, the one producer being a test drilled by William Bell and others in the southeast corner of the J. E. Zimmermann farm, in the northeast quarter of Section 1, Washington Township, Gibson County, which had an initial production of 70 bbls. Top of sand was found at 797 feet and drilled 37 feet in sand, to a total depth of 834 feet. This well is slightly in advance of production and makes a nice strip of good-looking territory for future development.

In Turman Township, Sullivan County, Hackett, Clark and others' test on the E. G. Carrithers farm, Section 29, came in a dry hole.

In Prairie Creek Township, Vigo County, just over the line from Sullivan County, to the north, the Siosi Oil Corp. is getting busy since bringing in its nice producer a month or so ago on the William Riggs farm, Section 31, and is now drilling Nos. 2, 3 4 and 5 on the same farm.

In Veale Township, Daviess County, Hartman & Sargent are making a deep test on the Delbert Barber farm, Section 28, at last report the hole being down around 1,800 feet and it is expected to go to a depth of 2,400 feet to test out the possibilities of the Mississippi lime formation, the Carper sand and the Niagara lime formation. This well at a depth of 1,150 feet showed for a commercial producer and if nothing is found in the lower formations, will plug back to the usual producing sand. This firm is drilling a wildcat on the Robert May farm, about 5 miles southeast of Washington, and is down close around 800 feet. Indications are that Daviess County will get a thorough testing in the near future, possibly not this season on account of crude prices, but with an advance in price, 1928 will show a wonderful change.

Illinois

Lawrence County has turned out another good shallow sand producer that may bring about more active work in that county of many producing sands. The new well that is now keeping the trade guessing was drilled by Phipps, Blosser and others, in the northwest corner of the Wesley Clark farm, in the southwest quarter of Section 2, Dennison Township, 7 miles south and 2 miles west of Lawrenceville, and 5 miles south and 2 miles east of Bridgeport. This well struck the top of the Bridgeport sand at 850 feet and at 22 feet in the sand made 120 bbls. initial, and adds a slight area of territory to production. A Bruner and others' No. 13 well, 2,320 feet from the south line and 150 feet from the west line of the W. H. Dinning farm and about 2 miles northeast of the Clark farm well, showed an initial pumping of 25 bbls., at 1,785 feet.

The wildcat venture made by Gordon & Stewart, in the northeast corner of the Lilly 40 acres, in the NE of the NW. Section 26, Christy Township, Lawrence County, 2½ miles south and 2 miles east of Sumner, and 2½ miles south and 4 miles west of Bridgeport, is reported good for 15 bbls. initial production, the sand being topped at 1,692 feet and drilled 27 feet more to a total depth of 1,719 feet. This farm is mapped as part of the N. J. Price 160 acres.

In the Allendale Field of Wabash Township, Wabash County, the Breen Oil Co.'s No. 2 in the northeast corner of the L. G. Stillwell farm, in the NE of Section 2, struck top of sand at 1,375 feet and at 15 feet in the sand, the well showed a 24 hours' production of 50 bbls. In Friendsville Township, same county, the Arkansas Fuel Oil Co. abandoned No. 1 H. M. Newcome farm, Section 18, and Joe S. Young abandoned No. 1 J. W. Price farm, Section 19.

In Montgomery Township, Crawford County, the Ohio Oil Co.'s No. 3 well, 600 feet from the south and west lines of the J. D. Reaville No. 2 farm, pumped 3 bbls., at 954 feet. In Honey Creek Township, John Phipps and others got a dry hole in a second test on the Phil Young heirs' farm, Section 10. In Martin Township, H. D. Barker and others are drilling No. 1. J. S. Baker, Section 13, and Abbott and others are drilling No. 1 William Dunlap farm, Section 13.

Central Ohio

In Monroe Township, Holmes County, the East Ohio Gas Co. drilled in a nice gas well at a test in the northwest corner of the S. R. Williams 100-acre farm, Lot 11.

In the Chatham Field of Chatham Townsite, Medina County, E. R. Edson & Son Co.'s No. 25 on the W. P. Wertz farm, Lot 5, Section 14, is good for only about 1 bbl., at 385 feet.

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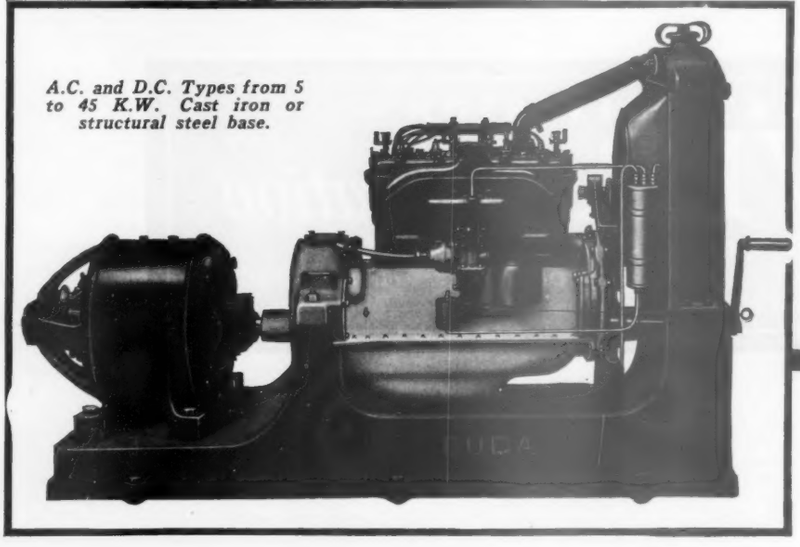

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KENTUCKY-TENNESSEE

(Continued from Page 62)

2 on the Peden farm is a dry hole, as is J. D. White's No. 2 Atwood farm.

In the Emery-Moore Pool, Jones & Breeding have a 1-bbl. pumper in No. 7 on the Deckard farm, while the Ruby Oil Co.'s No. 10 Steffye farm was dry.

In the Hall Baker Pool, R. B. Tyler has a light gas well at a test on the Edward Minick farm.

In the Coral Hill district, Hunt, Leach & Mitchell struck a duster at No. 4 on the Hayden Myers farm.

Daviess County

In Daviess County, in the Roby Pool, the Leeper Oil Co.'s No. 6 well, 215 feet from the north line and 280 from the west line of the John Roby 90 acres, is reported at 19 bbls. initial production. This is southwest of Pellville, near the Daviess-Ohio County line.

Joe Young and others drilled a dry hole in both the Jett and Barlow sands at a test on the Agnes Able farm, at a depth of 745½ feet.

Dry Holes in Clinton

Clinton County reports two dry holes. Owens, Long and others' No. 1 James Scott farm and Bryson & Stinson's No. 1 Amalon Phillips farm are the two dusters.

Eastern Kentucky

Eastern Kentucky did not turn up anything of much interest since the last report, as few completions were announced. In Johnson-Magoffin Counties, Henry Lemaster's No. 1 on his own farm, in District 27, pumped 10 bbls. from the producing sand.

In Lee County, District 17, the Harris Spencer D. & P. Co.'s second test on the Darts-Short land pumped 2 bbls. In District 20, Tipton & Tackett's No. 2 Sarah Vanderpool farm pumped 10 bbls. initial.

In District 8, Estill County, the Superior Oil Corp.'s No. 12 on the A. F. West and others' farm, pumped 2 bbls., and No. 15 on the Green Campbell farm but 1 bbls. Powell & Weather's second test on the Bige Brinegar farm proved a dry hole.

In Wayne County, District 5, C. M. Woork's No. 3 Simpson heirs farm and Dyer & Russell's No. 1 Joe Alexander farm were both dry. In District 13, same county, the Superior Oil Corp. drilled a 3-bbl. pumper in No. 2 on the Coyle heirs farm, while Spradlin & March drilled a dry hole in a test on the Hicks heirs farm.

CANADIAN FIELDS

(Continued from Page 55)

feet. Royalite No. 9, LSD 6, Section 13-20-3w5, is rigging up as an offset to Vulcan No. 1.

Dalhousie Oil Co.'s No. 1, LSD 4, Section 18-20-2w5, is drilling in the Madison limestone at 4,115 feet. Dalhousie No. 5 producer, LSD 16, Section 30-19-2w5, which is being drilled deeper, is drilling at 4,540 feet. Dalhousie's No. 6, LSD 10, Section 13-20-3w5, is at 4,000 feet and drilling. In the northern end of the field, Imperial-Millarville (Foothills Oil & Gas Co.'s) No. 1, SW, Section 26-20-3w5, is reported shut down at 525 feet, preparatory to changing to rotary outfit.

Seneca Oils', LSD 1, Section 34-20-3w5, is at 2,706 feet and shut down waiting for casing, which cannot be hauled on account of road conditions. Home Oil Co.'s No. 2, LSD 14, Section 20-19-2w5, is at 2,095 feet and bailing, but owing to the limited storage available no definite production test can be made. It was planned to carry this test to the producing horizon in the Fernie shales encountered in No. 1 deep test; but there is a prospect that a test of the present horizon may show a fair commercial production in the Dakota sand.

Stockmen Oils', No. 1 LSD 1-2, Section 27-20-3w5, has finished sidetracking the bailer which lodged in the hole at 4,100 feet and is running the 8¼-inch casing to the bottom of the hole at 5,300 feet.

Okalta Oils' No. 1, LSD 1, Section 1-20-3w5, is at 3,690 feet and drilling. At 3,600 feet the drill entered an oil sand which continued for 35 feet, bailing indicating a production of about 1 bbl. per hour. A previous oil horizon was met at 3,200 feet; but neither sand looked like commercial production. The 10-inch casing will be carried to the first hard stratum and set without cementing, to shut off the oil. The drill is apparently entering the Kootenay formation.

New Valley Test

Shareholders of the New Valley Oil Co. held their meeting at Calgary recently. H. P. McLeod is president and P. J. Tims vice president of the company; George Hinton has been named secretary-treasurer to succeed H. A. Horseman. The company is drilling a test on an outlying fold paralleling the Turner Valley structure, the location being LSD 4, Section 6-21-2w5. The test is now drilling at 1,980 feet, after experiencing some trouble in overcoming caving conditions that developed after the winter shutdown. Traces of oil and slight showings of gas have been reported. The drill is apparently getting out of the Benton shale into the Dakota sand, the producing horizon in the latter being looked for at 2,500 feet or less.

Advance Oil Co.'s No. 5, is making a location for a test in the Turner Valley. A tentative location has been spotted in LSD 16, Section 19-19-2w5, a mile due south of Dalhousie's No. 5, and a half mile northwest of Home No. 1. The test will spud in early in September.

Reports are current that shipping facilities from the Turner Valley Field will be improved by the early construction of the proposed branch railroad from Calgary to Fernie, British Columbia. It is understood that contracts for the first 51 miles from Sparwood to Elk River have been let, and that construction of the Calgary end of the line will be commenced in the spring of 1928. Men are now clearing the southern end of the right of way. The line would extend along the south branch of Sheep Creek, cross Turner Valley and thence continue to Calgary; and in addition to giving the Turner Valley Field direct railroad connection, it would traverse the potential oil areas of the Waite Valley and the Rickert structure further west. Considerable filing has been done on these areas, but transportation difficulties have held up actual development.

Southern Foothills

In the southern foothills, Imperial-Highwood's No. 1 LSD 3, Section 36-18-3w5, is drilling at 2,796 feet, after cementing casing at 2,715 feet. The drill is in the Kootenay formation.

On the Morley Indian reserve, Gold Coin Oils is reported drilling around 3,305 feet. In the Moose Mountain district, Signal Hills Oil Co.'s No. 1, LSD 9, Section 34-23-5w5, is salvaging the last of the casing after which the well will be plugged with cement and work resumed on Signal Hill's No. 2, same LSD, now shut down at 1,450 feet.

A local syndicate at Hanna, Alberta, has leased acreage on which a shallow gas flow was recently struck on the C. C. Harris farm, a half mile south of Hanna. It is planned to drill a commercial test for gas if further investigation of the shallow production justifies development of the area.

It is reported that in the Rocky Mountain area a dome structure has been located traversing Lake Louise and showing exposures of pre-Cambrian strata.

In the Skiff Field, Southern Alberta, Devenish Petroleum's No. 1, LSD 5, Section 27-5-14w4, is reported to have started drilling deeper. The well got the present sand at 3,080 feet and continued drilling to 3,090 feet, when a bailing production of 250 bbls. a day was secured. Several tank cars of the crude were shipped to the Imperial Oil, Ltd. plant at Calgary. If the deeper drilling fails to secure additional production in the lower horizons penetrated, the well will be finished in the present sand.

Near Warner, the Gas Production & Transportation, Ltd.'s No. 1 test lost its derrick and part of its drilling equipment by fire. This test was spudded in quite recently, in NE, Section 21-4-18w4. At 385 feet a pocket of gas was struck, but drilling continued to a reported depth of 460 feet with a 15½-inch hole. The bit was lost in the hole and the crew were preparing to fish when the gas flow be-

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came ignited, apparently from a short-circuit in the lighting system. New equipment is being secured at once, and it is expected drilling will be resumed the latter part of September.

In the Cypress Hills area near Medicine Hat, derrick timbers and camp material have been shipped for Eagle Butte Oil Co.'s No. 1, LSD 3, Section 31-7-4w4. The drilling outfit used for the Roth Syndicate No. 2 deep test at Redcliffe has been dismantled and is being moved to the new site, and the same drilling crew will handle the work there.

Irma-Wainwright

In the Irma-Wainwright Field, east-central Alberta, British-Wainwright Oil Co. No. 1, LSD 4, Section 22-45-6w4, has set and cemented the 4¼-inch casing at 2,222 feet. As soon as the cement sets the test will be drilled into the sand. Frank Stevens and Harry Elliott are handling the drilling. National Exploration Co., LSD 1, Section 30-45-6w4, has cemented off the gas encountered just above the oil sand at 2,370 feet and is getting ready to drill into the sand. Edmonton-Wainwright Oils No. 1, producer, LSD 4, Section 29-45-6w4, has been fishing for tubing which parted near the bottom of the hole. Mid-Canada Oils, Section 35-45-6w4, is rigging up and will likely spud in early in September. This well will test a new section of the Irma-Wainwright Field.

On the Ribstone-Blackfoot structure further east, Ribstone Oils No. 1, LSD 1, Section 1-46-1w4, has resumed drilling after setting the 10½-inch casing in cement at 1,840 feet to shut off water.

On the Montana side of the international boundary, Equitable Oil Co. of Regina, Sask., drilling on the Perkins lease, SW Section 34-33-12e, is reported to have got at 1,080 feet a gas production good for between 3,000,000 and 5,000,000 feet a day. Drilling is being continued at 1,410 feet, using the gas as fuel. The company is financed largely by Saskatchewan capital, the officers being: president, Senator F. W. Laird of Regina; vice president, J. R. Wilson, Saskatoon; secretary-treasurer, Col. C. B. Keenleyside, Regina; manager, B. V. Hole.

Six miles southwest of Sweetgrass, the S. Hart Green-Lerum No. 2 is reported to have spudded in. Oak Oils, Ltd. of Calgary is planning to deepen its producer in NW SW, Section 32-35-3w. This well has a small production of crude naphhtha samewhat similar to that of the Turner Valley from a dolomitic limestone at 1,743 feet.

In the Fraser Valley, British Columbia, the Sumas Oil & Gas Co. of New Westminster has resumed drilling on the Kennedy lease. This test last year was carried to 697 feet, all except five feet of drilling being in clay. The drill stopped work in a brown shale. At this depth the well had some gas production, samples showing from 91.5 to 96.65 methane. The test is being continued for oil.

Sage Creek Area

In the Sage Creek area, B. C. Oil & Development Co. No. 2 which is being drilled by S. C. Ferdig as an offset to Glacier Oil Co. No. 1, is down 100 feet and drilling. Production is not expected short of 3,000 feet. B. C. Oil & Development Co. No. 1 has been shut down at 3,250 feet. Glacier No. 1 got a show at 3,280 feet and put in a shot of 500 quarts of nitroglycerin to loosen some lost strings of tools. When the shot was put off there was no showing at the surface and it was thought the hole was bridged or plugged. Later the tools were run in the hole, and shortly afterward the well started to flow by heads, blowing oil over the top of the derrick. In the middle of a second blow it shut off suddenly and is thought to be again bridged. Efforts will be made to clear the hole and test the possible capacity.

In Saskatchewan the Eden Valley Oil Co. is locating its No. 1 test a short distance south of Outlook.

In Ontario, Union Natural Gas Co. No. 16, Dawn township, Lambton County finished a dry hole at a little below 2,100 feet. Union No. 17, Dawn, is reported drilling at about 1,700 feet.

In the old Tilbury Field, Kent County, Union Natural Gas Co. No. 269, George Jackson farm, Lot 183, Talbot Road, Romney Township, finished a small gasser in the Tilbury sand. Union No. 270, Robert Coatsworth farm, Lot 182, Talbot Road, also finished a small gasser. Union No. 271, John Shanks farm, Lot 184, is drilling close to the sand. No. 272, same farm, is drilling.

SOUTHWEST WILDCATS

(Continued from Page 48)

scouts are watching developments closely because the wells are 100 miles from production and information is valuable as bearing on that entire stretch of country along the Rio Grande at Eagle Pass.

Another important wildcat in Maverick County, the Ryan Consolidated Petroleum Co.'s No. 1 Indio, in the southern part of the county, had a bad fishing job at 1,300 feet, but finished it and is now drilling at 2,210 feet.

Medina County

Golden West Oil Co. is cleaning out the R. P. O'Brien well on the Nixon land in Survey 531 in Medina County, 3 miles west of the Ina Field, which at 1,007 feet has been showing some oil, but was not properly completed. An effort will be made to get the junk out of the hole and finish it up and make a well. On the success of the enterprise depends whether or not there is going to be a new little shallow pool in Medina County.

Duval County

Schlessinger Oil Corp.'s No. 1 Moody, Survey 60, located 330 feet to north line and 1,650 feet to east line, is drilling at 1,400 feet. National Oil Co.'s No. 1 Ball, Survey 16, at 450 feet to north and 150 feet to east lines, has derrick up. Humble-Reiter-Foster's No. 6 Kohler, Survey 400, located 60 feet to west line and 660 feet to south lines, has set casing at 2,760 feet and at 2,770-78 feet. Looks like an oil well.

Hidalgo County

Queen City Oil & Gas Co.'s No. 1 Adams, Lot 1, Block 82, 3 miles north of Mercedes, has resumed drilling at 2,043 feet.

Jim Hogg County

Paizano Oil Syndicate's No. 1 Campbell, Las Vivoritas grant, is drilling at 1,050 feet. Holden and others' No. 3 Jones, Share 27, Block 136, is drilling at 2,386 feet. Harry Hamilton and others' No. 1 Holbien, Block 44, is standing at 2,220 feet.

Starr County

T. W. Foltz and others' No. 1 well, Survey 301, located 150 feet to northwest and 2,400 feet to west, is ready to spud. in. Milham Corp.'s No. 2 Salinas, Porcion 111, is drilling at 4,793 feet.

Webb County

O. W. Killam's No. 2 Billings, SE NW Section 712, located 450 feet to NW cor. is in sticky shale at 2,660 feet.

Zapata County

E. K. Bateman's No. 2 Vela, Block 4, at 675 feet to northwest and 417 feet to northeast lines, is drilling at 3,300 feet.

Bexar County

A. R. Beal, trustee's No. 1-A Ackerman, Survey 133½, is drilling in Austin chalk at 827 feet. Allen Burnam's No. 1 Ward, A. A. Gradiner Survey, 1,200 feet to east line and 325 feet to south line, has spudded in. Humble Oil & Refining Co.'s No. 2 Yturri, A. Stafford Survey, 2,200 feet to west line and 750 feet to south line, is drilling at 600 feet.

Bee County

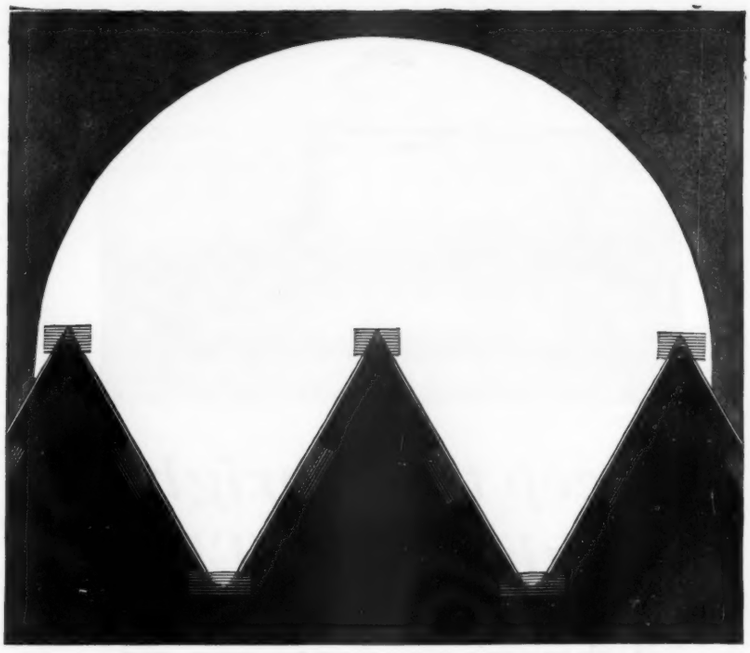
D. Hewitt's No. 1 Ray, 1½ miles west of Pettus, is shut down at 1,400 feet. Nichols & White's No. 1 Hicks, Block 19, NW cor., is standing at 1,408 feet. Red Ant Oil & Gas Co.'s No. 1 Perry & Chesnut, B. Q. Hadley Survey, spudded in and shut down.

Caldwell County

Calco Petroleum Co.'s No. 2 Thomas at 1,644 feet made 2 bbls. and will drill to the Austin chalk. Sutton & Smith's No. 1 Carter, G. Hindes Survey, is standing at 2,597 feet; No. 2 Carter is location 300 feet east of No. 1; No. 1 J. L. New, James Hindes Survey, at 150 feet to west line and 600 feet to south line, is drilling at 2,300 feet.

DeWitt County

Collette Oil Co.'s No. 1 Boldt, James Lasater Survey, 3,129 feet to east line



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and 800 feet to south lines, is rigged up. Empire Southern Oil Co.'s No. 2 Smith. Survey 3, at three-fourths of a mile west of No. 1, drilling at 2,625 feet. McNeil & Matthews' No. 1 Kaiser, A. Dillard Survey, 1,508 feet to NW cor., is drilling at 3,800 feet in boulders. Williams & Gates' No. 1 Gohmert, G. W. Brooks League, 175 feet to north line and 300 feet to east line, is drilling at 760 feet.

Dimmitt County

Humble Oil & Refining Co.'s No. 1 City National Bank, Survey 654, located 700 feet to north line and 2,000 feet to east line, is drilling at 3,250 feet.

Fayette County

Magnolia Petroleum Co.'s No. 1 Fordtran, J. R. Jones Survey, 200 feet to northeast lines and 1,050 feet to west lines, is drilling at 3,146 feet.

Goliad County

Houston Oil Co.'s No. 1 J. F. Lott, G. Cortinas, 2,000 feet to north line and 300 feet to west line, is testing at 2,902 feet; No. 4 R. L. Pettus, P. Trevino Survey, 1,200 feet southwest of No. 2 which is a small gasser, is rigged up. C. Simpson's No. 1 Ideus, W. H. Pendleton Survey, 156 feet to north line and 540 feet to west line, is ready to spud in.

Hays County

J. E. Rodgers' No. 1 Hohenburg, 2½ miles east of San Marcos, is drilling at 1,740 feet.

Karnes County

Maurer & Ellis' No. 1 Henke has derrick up and moving in machinery. Reynosa Oil Corp.'s No. 2 Butler, Block 43, is deepening from 1,947 feet.

Kerr County

Walker-Van Duyn's No. 1 Leigh, Survey 38, located 500 feet north of river and 150 feet south of railroad, has resumed drilling at 2,405 feet.

Kinney County

Havelin Oil Co.'s No. 1 Weatherby, Section 21, Block 5, is shut down at 4,410 feet. W. A. Stephens and others' No. 1 Jim Clamp, Survey 346, is shut down at 1,070 feet for water after slight show of oil and gas in the Eagleford.

Lavaca County

M. L. Benedum's No. 1 Russek, J. G. Reynolds Survey, Block 38, located 1,060 feet to west line and 210 feet to south line, near Ezzell is drilling at 2,000 feet.

Lee County

Alberts, Glass & Wills' No. 1 Henderson, William Mock Survey, 3,960 feet to west line and 1,350 feet to south line, is drilling in hard formation at 1,100 feet.

Live Oak County

Henderson Coquat's No. 1 G. P. Reagan is at 873 feet, drill stem test at 400 feet showed 2,000,000 feet of gas. Delta Oil Co.'s No. 1 McNeil, Jane Curry Survey, 4,000 feet to NE cor., is drilling at 930 feet. Houston Oil Co.'s No. 18 Cartwright, Colchado Survey, 2,404 feet northeast of No. 5, has cemented casing at 2,500 feet; No. 19 Cartwright, W. J. Cannon Survey, is rigged up 1,500 feet northeast of No. 17; No. 20 Cartwright, M. Trudo Survey, is location in SE cor.; No. 21 Cartwright, Colchado Survey, is location 2,900 feet northeast of No. 18. Simmons Oil Co.'s No. 4 Sartain, Simms tract, is shut down at 2,303 feet. J. W. Walton's No. 1 Roberts, west of Three Rivers, is pulling casing at 1,860 feet.

Medina County

California-Medina's No. 1 Rothe, center Survey 1,012, is drilling at 3,270 feet. R. P. O'Brien's No. 1 Nixon, Survey 531, is to be cleaned out at 1,007 feet by the Golden West and the well reconditioned. Cecil Switzer's No. 1 Zerr, Survey 459, is drilling at 3,485 feet.

Maverick County

Ryan Consolidated Petroleum Co.'s No. 1 Indio, Survey 14, center, is drilling at 1,733 feet. Rycade Oil Corp.'s No. 1 Chittim is fishing at 5,630 feet in Section 129, Block 7; No. 2 Chittim, Section 158, Block 7, is rigged up; No. 2 Sullivan is drilling at 4,475 feet.

Milam County

Coffield-Hale's No. 2 Stephens, James Reese Survey, 10 feet from No. 1, failed to get sand at usual depth and is drilling deeper. Groneman Brothers' No. 1 King, 4 miles southeast of Rockdale, has resumed drilling at 2,850 feet after completing fishing job. W. A. Jones' No. 1 Casparis, 960 feet southeast of No. 1 Smith, is ready to set casing; No. 2 Smith, offsetting No. 1, is drilling. Yegua Oil Co.'s No. 1 Richards, J. H. Smith Survey, 6 miles southwest of Rockdale, has resumed drilling after a shut down due to lack of water.

McMullen County

Nelson & Woods' No. 1 Shiner, Survey 48, Block 74, is drilling at 1,580 feet. George Pickett's No. 1 Jacob, Survey 7, located 660 feet to CNL, is standing at 3,030 feet.

San Patricio County

J. M. Davis' No. 1 Welhausen & Driscoll, Lot 8, Section 68, at 3,020 feet steel line measure, is drilling and may drill deeper. Houston Oil Co.'s No. 1 Ragsdale, J. N. Seguin Survey, 300 feet to SE cor., is location. Mission Drilling Co.'s No. 1 Hardwood, SE cor. of tract, is rigging up. National Oil Co.'s No. 1 Sullivan, J. C. McMullen Survey, 500 feet to SW cor., is rigging up. John Sigmund's No. 7 Wallace Robinson is still fishing at 4,012 feet.

Val Verde County

Crusoe Williams' No. 1 Holman, Section 5, Block N, is straightreaming at 2,940 feet. Douglas Oil Co.'s No. 1 Sellers, Section 82, Block A, is shut down at 3,020 feet. East Del Rio Oil Co.'s No. 1 Russell, Section 183, is straightreaming at 3,190 feet. Hiawatha Oil Co.'s No. 1 Sellers, Section 1,031, is drilling at 3,220 feet. Independent Operators' No. 1 Whitehead, SE SE Section 30, Block 4, is shut down at 3,820 feet. Magnolia Petroleum Co.'s No. 1 Whitehead, Survey 81, is drilling at 2,550 feet. O. O. Owens and others' No. 1 Mills, Section 128, Block 1, is drilling at 2,820 feet after testing 465,000 feet of gas at 2,524 feet.

Wilson County

Thomas and others' No. 1 Aug. Haese, Survey 124, located 300 feet to NE cor., is shut down at 2,200 feet for repairs.

Zavala County

J. G. Pundt's No. 1 West, Fuentes Survey, NW cor., is drilling at 640 feet. B. F. Thompson's No. 1 West, northern part of the county, is shut down at 228 feet waiting on water.

CALIFORNIA FIELDS

(Continued from Page 56)

E. E. Combs also brought in a new producer, his No. 1 Huntington being a 155-bbl. pumper when put on the beam at 3,944 feet. The Hauser Petroleum Co. finished an exceptionally productive well when No. 3 Wilhoite was put on the beam early in the week, as it was brought in from the so-called shallow tar zone. It is being officially completed as a 170-bbl. pumper of 14.1 gravity oil daily from the exceedingly shallow depth of 2,113 feet. The World Petroleum expects to have both Nos. 5 and 6 in the town lot area on production within a few days and, while large production is not anticipated, they should result in satisfactory commercial production. The Bruce Oil Co. is experiencing considerable trouble in completing No. 1 Huntington and, while it looked as though satisfactory production could be expected at 4,357 feet, the well pumped off within a very short time. The Standard, with 10 drilling projects in the Huntington Beach Field at present, has three on the Pacific Electric lease and two on the Bolsa Chica property which look good for early production. Drilling operations in the town lot section have been holding up fairly steady for several weeks and while the day of big production has long since passed, a 200-bbl. well in this area is considered a commercial producer as they usually hold up after completion and the large amount of oil sand penetrated guarantees long life. The Long Beach Field closed a rather uneventful week from a production standpoint, the only thing of interest being the abandonment of five former producers by the General Petroleum Corp., including No. 1 Boyer Kelly and Nos. 1, 2 and 5 on the Scoco lease.

Dominguez

Drilling operations in the Dominguez Field for the past year have been negligible and no change in this conservative policy is anticipated, as this light oil is

being held for a more opportune time after the present flush production condition. The only important development in this area during the period has been the inauguration of the Marietta process which consists of pumping dry gas down a few wells for the purpose of increasing the ultimate recovery of oil from the sands and prolonging the flowing life of adjoining wells. After considerable preliminary work, definite application of this process started on August 31 of last year when dry gas was pumped into No. 101 Reyes of the Shell and No. 14 Hellman of the Union. These two receivers are "five-spot locations," being situated in the center of a theoretical square formed by four producers, one of which is located at each corner. It will probably be another year before any definite results become manifest, although there has been a marked retarding of the decline in production of producing wells in this field, which no doubt can be attributed primarily to the conservation work done to date. The action of the Shell and Union in curtailing drilling operations at Dominguez is wise and worthy of considerable commendation as this policy reduces waste to a minimum. Two horizons have been definitely established in this field, although only the upper is being utilized at present. The Union's No. 3 Hellman, an edge well on the north flank of the structure in the western part of the field, and the same company's No. 12 Callender have developed production from a horizon stratigraphically below the bottom of the productive zone, which has been found in the rest of the field.

Ventura

When production was restricted in the Ventura Avenue Field on May 1 it was done for the specific purpose of keeping state production within bounds and with the intention of continuing the restriction until general conditions improved. The Shell's drilling campaign in this field, however, indicates there is a possibility of some production being opened up or at least increased as the result of additional completions from time to time. This company has completed four wells on the Taylor, Edison and Gosnell leases within four or five weeks, the total new production added as a result being 12,110 bbls. per day. The Shell is running 10 strings of tools and it is quite evident from the number of recent spuds and rigs going up that this rate will be maintained for the next several months unless something unforeseen develops. It is generally rumored that a part of the present curtailed production at Ventura Avenue will be opened up within 90 days, although it is hardly likely more than one company will be affected.

There was only one new well finished in the Ventura Avenue Field during the current week and this was incidentally a rather disappointing completion, No. 6 Hartman of the Associated, which registered an initial of only 680 bbls. of 29.8 gravity oil daily from 6,885 feet. It is believed, however, that production will build up after the well has had a chance to clean itself out as the depth of the hole indicates the presence of considerable mud and hematite. The Associated has one or two other drilling wells which look like potential producers within two or three weeks but the limited amount of driling being done at present precludes the completion of anything more than a small number of new wells during the next 60 days. G. J. Magenheimer should complete his No. 1 Hartman in the extreme northern part of the Ventura Avenue Field within a day or two and with the outlook favorable for production operators are naturally watching developments with interest as the completion of a successful commercial producer will result in the drilling of two or three offsets within a short time. The Associated and Bolsa Chica will undoubtedly offset No. 1 Hartman immediately upon completion if results warrant and with Magenheimer almost certain to undertake another well this will also require offsetting. The Petroleum Securities, which is developing the Orton and Willet leases in the southern part of the field, should finish three new wells on these properties within 30 days. No. 2 Willet and Nos. 2 and 3 on the Orton property are the individual wells which look good for early production.

Richfield-Brea Olinda

The Fullerton, or Brea Olinda Field in Orange County, where some of the oldest fields and most valuable oil reserves of the state are situated, just now presents the peculiar combination of being one of the most active drilling districts in the state and at the same time having about 8,000 bbls. of daily production shut in. The eastern end of the district, Yorba Linda, Atwood and East Coyote Hills, is the area showing the greatest development. There is no field in the state, barring town lot areas, showing greater activity as both large and small companies are engaged in drilling. The total number of active drilling projects is about 30. The Standard Oil Co. has three wells drilling and the Union a like number. The California Petroleum Corp. is carrying on a consistent development campaign on its Richfield Consolidated leases and smaller companies, such as Superior, Delaney, Nugent Drilling Co. and Berry Syndicate are responsible for another dozen wells. The Petroleum Securities is undertaking its first development in this section and is prospecting for a deep zone on a lease totaling about 500 acres, taken over from the Kraemer estate, adjoining the Standard Oil Co.'s Kraemer lease. In the eastern end of the East Coyote Hills the Holly Development Co. is trying to prove an extension of the field. This well is approximately a half mile beyond the edge of the field. About six weeks ago it was reported to have got production but the output was small and after a few days of intermittent pumping drilling was resumed. One new well was put on production at Brea Olinda during the past week and several more should be in shortly. The new producer was the Fullerton Oil Co.'s No. 22 which came in under a natural flow doing 550 bbls. of fairly clean 27.8 gravity oil initially from an even 5,200 feet. It was somewhat of a disappointment but may build up later. It took the Nugent Drilling Co.'s No. 1-A in the Richfield district two weeks to clean up and as a consequence it is just being listed as a finished project doing 140 bbls. daily from 3,302 feet.

Northern California Wildcats

The crew on the Pacific Eastern's wildcat in the Union Avenue or Casa Loma area at Bakersfield in Kern County have been singing the popular ballad, "Muddy Water," practically all week as bailing tests for several days have only shown a lot of dirty water and drilling mud. A little oil was found later when swabbing operations got under way but nothing of consequence developed and hence this very important wildcat, which has resulted in the leasing up of acreage for 25 miles around and may lead to the spudding in of several new holes on adjoining acreage soon, is still an unknown factor as far as actual production is concerned. Nearly every one familiar with conditions in this section admits, however, that everything points to a new field in this immediate section and several geologists are of the opinion this one well alone will lead to considerable drilling in the center of the San Joaquin Valley within the next several months. Wildcat acreage which could be tied up for from $10 to $25 an acre a month or so ago has jumped to as high as $500 in some cases with several operators actually tying up on this basis.

The writer has been calling attention to this section of the San Joaquin Valley for several years and in 1923 recommended the drilling of a conclusive test in the present Mount Poso Field. Supplementing past statements attention is again directed to the possibilities of the San Joaquin Valley and up along the coast in Ventura, Santa Barbara and San Luis Obispo Counties. California's future lies almost entirely on these areas and if wildcatters use a little common sense by playing the law of averages and concentrating their activities in potential areas instead of drilling in synclines and unfavorably located sections several new fields will be opened up within the next two years. There was no change in the Kettleman Hills area, in fact, nothing of a startling nature developed in any

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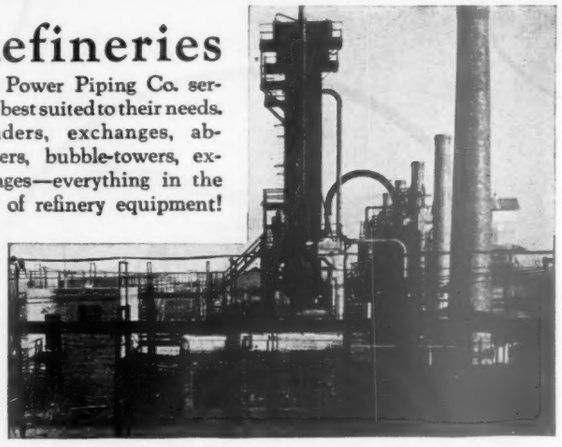

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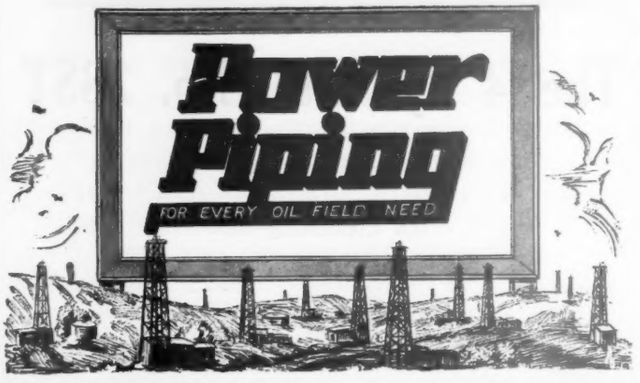

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of the other numerous wells being drilled north of the Tehachapi Range during the week.

Southern California Wildcats

With work in the Potrero area south of the Inglewood Field suspended indefinitely this section has ceased to be of importance for the present. The Associated stopped work on its wildcat in this district a few weeks ago and will probably let matters stand as a new field right now would not be desirable. New work started during the past week included the erection of a rig by Charles A. Son and associates on the Pinkerton farm in Orange County and it is the present intention of these operators to drill ahead immediately. About 800 acres have been leased up in this area which is located north and east of the city of Santa Ana and about 2 miles from the city of Orange. The Calvin Oil Co. has finally abandoned its granite quarry well out near Eagle Rock after a long nine-year battle. No one really considered this project as even worthy of consideration as the bit was in granite from almost the grass roots down. It was a witch stick location. That the formation encountered precluded the presence of oil is evidenced by the fact that only 6,138 feet of hole was made in the nine year period since spudding in 1918. Wildcatting in southern California at the present time is almost negligible and a careful check of the most important projects under way did not reveal a single interesting development during the week.

LA.-ARK. WILDCATS

(Continued from Page 46)

990 feet after topping the Blossom sand at 2,690 feet. These operators' No. 1 Matlock, Section 23, made a Halliburton test of a sand at 3,069-71 feet showing an estimated 5,000,000 feet of gas and a light spray of oil. Casing is being set at 3,068 feet to bail the well in.

Catahoula Parish

Lochnager Oil & Gas Co.'s No. 1 Beasley, Section 26-9-6e, tested salt water with only a show of gas after setting 600 feet of 2½-inch liner at 3,093 feet. The hole will be abandoned and a new test drilled.

Claiborne Parish

Magnolia Petroleum Co.'s No. 1 Lee, Section 16-22-8, is drilling hard lime at 4,039 feet.

DeSoto Parish

Dixie Oil Co.'s No. 1 Jenkins, Section 9-12-11, is drilling iron pyrite and hard shale at 5,498 feet. The Texas Company is setting tubing with a packer at 2,550 feet in No. C-15 Sample, Section 36-13-12.

Franklin Parish

Barbour Oil Co.'s No. 1 Baker, Section 3-15-7e, has been shut down at 2,960 feet. Cowell and associates' No. 2 Moore, Section 12-11-6e, has been abandoned temporarily at 1,385 feet. This test blew out two weeks ago making an estimated 10,000,000 feet of gas with more than 10,000 bbls. of salt water and then bridged over.

Grant Parish

Swope and associates' No. 4 fee, Section 18-9-1e, is coring at 1,595 feet.

Natchitoches Parish

Lawson & Pharris have a derrick up for No. 2 Clark & Morse Lumber Co., Section 3-5n-6w. The Ohio Oil Co. is drilling broken lime at 2,700 feet in No. 2 L. & A., Section 26-13-6w.

Rapides Parish

Caroline Louisiana Oil Co. has a derrick up for No. 1 Lee, Section 1-4-1e.

Red River Parish

J. H. Askew is building a derrick for No. 1 Richardson, Section 25-13-11. Hazlett & Simmons' No. 1 Neeley, Section 1-14-12, has been completed making 2,000,000 feet of gas from a depth of 1,712 feet.

Sabine Parish

Arkansas Fuel Oil Co. is drilling hard lime at 3,960 feet in No. 10 Logan, Section 32-10-13, Pleasant Hill district. This company's No. A-1 Logan, this section, is having liner set at 3,106 feet preparatory to bailing. Foster and associates are bailing casing at 3,065 feet in No. 1 Nabors, Section 30-10-12. Frazier and associates have a rig up for No. 1 Harris, Section 29-10-12. Magnolia Petroleum Co.'s No. 2 Hall, Section 33-10-12, is drilling gumbo at 802 feet. This company's No. 1 Rembert, Section 32, is being swabbed. It was bailed dry with a show of oil at 3,212 feet. Moffett and associates are drilling at 1,100 feet in No. 2 Moore, Section 5-9-12. A. H. Tarver's No. 1 Long Bell, Section 5-8-13, is in gummy shale at 1,140 feet. H. P. Tate's No. 1 Cook, Section 23-10-11, is drilling at 3,040 feet.

To the south in the Zwolle district, L. M. Emlet has abandoned No. 5 Bowman, Section 9-7-12. This test drilled to a total depth of 4,070 feet but has been shut down since early in June. No. 8 Bowman, Section 16, also has been abandoned at a depth of 579 feet. No. 7 Bowman tested dry after drilling plug at 2,555 feet but is to be deepened.

Richland Parish

Gulf Refining Co. has set 15½-inch casing at 126 feet in No. 2 Marshfield, Section 29-17-6e. This company's No. 1 Ouachita National Bank, Section 25-17-5e, is drilling gumbo at 2,225 feet. To the southwest, this company's derrick for No. 1 Seibert, Section 35, has been abandoned. Moody & Seagraves have cemented 10-inch casing at 920 feet in No. 1 Hemler, Section 20-16-6e. These operators' No. 1 McCoy, Section 32-16-6e, is drilling at 250 feet. Natural Gas & Fuel Corp. has set 12½-inch casing at 160 feet in No. 1 Sartor, Section 20-16-6e. Ruston Drilling Co. is drilling shale at 1,710 feet in No. 2 McCoy, Section 8-16-6e. Woodley Petroleum Co. & Triangle Drilling Co. are drilling at 200 feet in No. 1 Hemler, Section 31-18-7e.

Webster Parish

Shreveport-El Dorado Pipe Line Co.'s No. 1 Gamble, Section 23-20-8, is drilling shale at 2,580 feet.

West Carroll Parish

Palmer Corp. is drilling at 2,475 feet in No. 1 Pioneer Cooperage Co., Section 16-20-10e. Phillips Petroleum Co.'s No. 1 Marion, Section 32-20-9e, is drilling at 2,221 feet.

Winn Parish

Ohio Oil Co.'s No. 1 Rolen, Section 9-12-1w, is drilling gummy shale at 1,545 feet. Rowe and associates have abandoned No. 1 Urania, Section 26-11-1e.

Arkansas

Union County

W. R. Keever's No. 2 Ezell, Section 12-17-15, is drilling at 3,040 feet. Magnolia Petroleum Co.'s No. 1 Carroll, Section 1-17-14, is in a sandy lime at 2,350 feet. Mazda Oil Corp.'s No. 1 Boyd, Section 9-17-15, is coring at 2,061 feet. It cored a shale at 2,046 feet. Ohio Oil Co. has started No. 2 Crain, Section 1-17-14, and already is down 300 feet. The 10-inch surface string of pipe was cemented at 247 feet. Owenwood Oil Corp.'s No. 1 Goode, Section 31-16-13, is drilling at 2,860 feet. Rice and associates' No. 1 Newton, Section 13-17-16, has been shut down at 2,566 feet.

Ouachita County

H. M. Harrell's No. 1 Camden Coal & Clay Co., Section 12-12-18, is drilling at 750 feet. Magnolia Petroleum Co.'s No. B-1 Stout Lumber Co., Section 28-14-16, tested salt water at 2,240 feet and now is coring at 2,285 feet. Moody Oil Corp. has started a derrick for No. 1 Bacon, Section 12-11-18.

Bradley County

Arkansas Fuel Oil Co. is drilling lime at 3,376 feet in No. 1 Arkansas Timber & Land Co., Section 25-16-12.

Calhoun County

Genther and associates have a rig up for No. 1 Stout, Section 3-14-16.

Columbia County

Tunica Petroleum Co. is drilling lime at 3,010 feet in No. 1 Bodcau, Section 27-19-23.

Hempstead County

Arkansas Natural Gas Co. has a location for No. 1 Carrigan, Section 2-11-26.

Miller County

Guest and associates are drilling shale at 2,100 feet in No. 1 M. & P. Bank, Section 30-15-26. Lenz and associates are rigging up for another test, No. 1 Mann, Section 22-15-26.

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NATURAL GAS PROPERTIES
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Must have gross sales not less
One Hundred Thousand Dollars
past twelve Months. Address
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FIVE WELLS made 980 bbls. Experienced operator wishes to form an association with individual or company capable of financing wells in rich shallow field. Box 336, Owensboro, Ky.

CAPITAL—An experienced dependable broker with following will aid in financing a worth while proposition. B. W. 810 Broad St., Newark, N. J.

OIL MEN—come to our new field in McKinley County, New Mexico. Three known producing sands from 300 to 1,800 feet, good drilling and high gravity oil. If you have the tools we will finance you if desired or give you acreage free to drill the Hospah Structure. Production practically sure in all tests. Box 611, Albuquerque, New Mexico.

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POSITION WANTED

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A DESCRIPTION of your used equipment run in these columns will sell it for you at a nice profit.

CHEMICAL ENGINEER, 38, married. Fifteen years experience in all phases of refining practice. Intimate knowledge of details of distillation, acid and clay treating and natural gas work. Specialist cracking, hydrogenation and motor fuel problems. Two years' experience in patent investigations. Full knowledge of inspection and petroleum analytical methods and present-day research; desires new opportunity for service. Locality no consideration. Box C-4, The Oil and Gas Journal, Tulsa, Okla.

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CIVIL ENGINEER—14 years' experience, geologic, typographic surveys, road projects and construction, canals, correspondence, bookkeeping, etc. Perfect knowledge Spanish-American character. Best references. Wants connection with oil company. Box C-3, The Oil and Gas Journal, Tulsa, Okla.

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MAP SAN JUAN BASIN—Geologic map of San Juan Basin and Adjacent Areas in Arizona, Colorado, Utah and New Mexico, showing proven and possible oil structures. Prepared for Miley Oil Co. of California by R. W. Sherman, Petroleum Geologist. For sale by R. W. Haiges, Jr., Farmington, New Mexico.

Paper White Prints, $10.00.

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Mail orders given prompt attention. Address
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DELAWARE incorporators. Charters fees small, forms. Charles G. Guyer, 901 Market St., Wilmington, Del.

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WILL GIVE 2,000 acres in solid block for a well in Coleman County; has good geology report. Adjoins Marland tract on the east. Between two wells now drilling south and north two miles. 15,000,000 gasser four miles east. Considered semi-proven territory. Will contract only with parties financially responsible. Box C-2, The Oil and Gas Journal, Tulsa, Okla.

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COLFAX COUNTY, New Mexico—80 acres oil lease. Close Charles T. Lupton's location Logan. Good showing oil and gas 1,085 ft. awaiting casing. Geological map. Price $4 an acre. O. B. Wall, Box 824, Wichita, Kans.

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FOR SALE—330-acre lease adjacent 100-bbl. well in Ohio County. Box 94-B, Hartford, Ky.

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	1 Time	2 Times	3 Times	1 Mo.
3 lines	1.05	1.80	2.55	3.30
4 lines	1.40	2.40	3.40	4.40
5 lines	1.75	3.00	4.25	5.50
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THE OIL AND GAS JOURNAL

Tulsa, Oklahoma

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Leases bought and sold any part of state. Inquiries replied to promptly; maps. William U. Tate, Francisan Hotel, Albuquerque, N. Mex.

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The OIL and GAS JOURNAL

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Classified Wants Department

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PRODUCTION FOR SALE—Marion and Butler County, Kansas. Deal direct with owners. Box B-994, The Oil and Gas Journal, Tulsa, Okla.

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WINKLER—PECOS COUNTIES
Leases and Royalties
W. S. PATTERSON
Pecos, Texas

OIL LEASES and royalties, Ector, Crane, Pecos, Reeves, Ward, Upton and Winkler Counties; buy or sell. C. H. C. Anderson, 712 Linz Bldg., Dallas, Tex.

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FOR SALE—Royalty paying 25 per cent. P. O. Box 3263, Tulsa, Okla.

ROYALTIES—Ten-acre blocks. Oil fields, Andrews County and others. Joe Cunningham, Big Springs, Texas.

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Coleman Hotel Bldg., Coleman, Tex.

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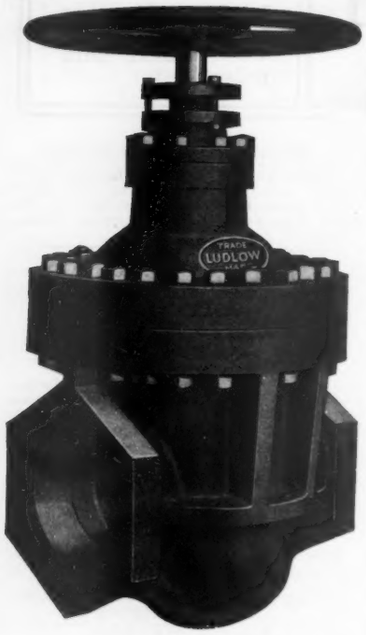

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LITTLE ACTIVITY DURING WEEK SHOWN IN THE CHICAGO MARKET

By J. B. Waldo

CHICAGO, Aug. 29. — No general activity in the spot gasoline market was found today. A few sellers stated that their business was a little better than at the close of last week but even these said the orders were small and for the most part were wanted promptly.

Quite a difference in ideas was found regarding the price situation. Several claim that when the dealer wants gasoline there was no trouble to sell at 6¼ cents but many others claimed that there is a great effort made by buyers to buy at less than that price. Some of the dealers claim they are offered U. S. Motor gasoline at 6⅛ cents. Other dealers say they can buy through purchasing agents at 6 cents by paying a small commission. For the higher gravities offers are made at 6½ cents for the 400 endpoint, 6⅝ cents for the 390 and 6¾ cents for the 375 by a number of sellers. Lack of active spot demand and apparently excessive desire for business by several refiners have given buyers the advantage and they are making the most of it.

Kerosene was firm on Monday with some inquiry for the 42-44 gravity as well as the lower grade. Some sales have been made at prices which are being covered with difficulty today. Inquiries are receivable for distillate but the business resulting is not large as the views of buyers and sellers are wide apart for periods of large quantities. The spot market showed no change. Gas oil was firm for the straightrun product with the zero oils being inquired for and in small supply at present.

Fuel oils sold in the same way as for several weeks with 80 cents the usual quotation for heavy grades which are chiefly in demand right now. The approaching three days holiday over Labor Day has not increased gasoline sales in the spot market and the event is now too close for any large buying for that occasion. There is a feeling that after September 1 something is going to happen that will take the market out of its present run but no one has a real idea of what it will be.

Week Was Quiet

The Chicago spot gasoline market was very quiet all of last week. Some of the old-timers in the sales end of the business say they believe it was as dull a week in a business way as they ever knew. But, like the stations, there are a good many more concerns than there was a few years ago. There was absolutely no change in conditions. Deliveries on contracts care for the larger part of the demand and the buying in the spot market was reduced by the fact that considerable supplies of gasoline were accumulated by users in Illinois in anticipation of the gasoline tax which went into effect on August 1. Nearly every motorist filled his tanks to capacity and some of the larger users stored considerable quantities. Our largest taxi company is variously estimated to have had from 1,500,000 to 3,000,000 gallons stored for its account when the tax went on. One of its officials has been quoted as saying that they had enough gasoline stored to last them to January. The company is supposed to consume about 1,000,000 gallons a month. This accumulation of supplies was certainly of some influence. There were upwards of 1,300,000 autos of all kinds registered in Illinois at the beginning of the year. If there was an average of five gallons bought by each car owner in excess of his requirements in anticipation of the tax it would count on the sales by refiners during the month.

Regret Price Cutting

Now that we are practically at the end of August, the peak month of the year, there is bound to be some falling off in gasoline consumption. No matter how fine the weather may be, the evenings are short, the schools are open and this year it has been so cool that there has been a shifting from the open road of an evening to the movie house and the legitimate. Jobbers have come through the "ice cream season" as one oil man called it and they might have done a good deal better than they did had it not been for the cutting of prices. The average jobber will say that the entire fault is with the Q. D. A., forgetting that the cut price and the giving of rebates and allowances brought about the discount system. The Q. D. A. was an honest attempt to recognize the established practice of reducing prices to large buyers by all sorts of methods. That it has worked to increase the evil is the claim of many. It has its defenders, but they seem to be less and less in numbers. There are some oil men who come right out and say that the evil described in the term of price cutting and in certain kinds of price cutting as "bootlegging," is simply a result of excessive competition due to overproduction not alone of crude or of its products, but of almost every factor in the industry, "except brains," as one oil man stated.

Amazed at Stations

Last week an oil man drove the highway along the east shore of Lake Michigan. This takes in a number of important manufacturing centers in Michigan as well as long stretches of farm land and many resorts. He stated that he was so dumbfounded at the number of filling stations along the highway that several times he went back to talk with the station keepers At one of these he was told by the owner that sometimes he did a business of 50 to 75 gallons on Sundays and holidays, that other days his sales very very small, just a few gallons. He said that no one had stopped at his station for more than 24 hours except for information. His prices were those prevailing all through that part of the state, namely, 15 cents for gasoline, including a 2 cents tax, and 20 cents for oil. There are hundreds of these stations scattered along the highways. The owners do not make a living. It would take a score of them to make a really worth while station. Yet they have their equipment and some sort of a station building and the investment in these useless and superfluous stations is enormous. Many of these stations never will pay. Some will in time, but in the meantime they are somebody's frozen asset.

A jobber from western Iowa sometime ago said that he now had 12 stations instead of five, but that the 12 did not pay him as well as the five used to do. And the worst part of it was that to protect his present stations' gallonage he saw no way to avoid building two more stations. One small suburb of this city has 12 sources of gasoline supplies where three served three years ago. The suburb has increased less than 25 per cent in population. These are old stories, but they tell one of the causes for the constant decline in gasoline prices over the year. Overproduction of crude has had some effect, but the reduction in crude prices does not compare with the reduction in gasoline prices.

Quality Counts

Last March when the Michigan oil men were gathered in convention they went into secret session to discuss the amazing fact that a large Detroit distributor had bought U. S. Motor gasoline on the basis of 8.20 cents Group 3. He has not paid as high as that since that time and a recent purchase was made on the basis of 5.88 cents, Group 3. The average station owner sees really no advantage in pushing his sales of gasoline and the same is becoming true of every oil product, consequently he buys as little as he can and keep his business at a level where he can make a showing should some larger company wish to take his business over on some plan ranging

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EASTERN MARKET MORE STABILIZED WITH SERVICE STATION REDUCTIONS

By N. O. Fanning
New York Bureau, The Oil and Gas Journal, Room 629, No. 101 Park Avenue, New York, N. Y.

NEW YORK, Aug. 27. — The eastern gasoline market was more stabilized in some sections with the recent reduction in service station prices bringing them more in line with the refinery market. In New York and vicinity the retail quotation now is 20 cents at nearly all stations, the number of those cutting below this figure being small.

However, the market as a whole cannot be considered steady, in as much as there is evidence of dumping of gasoline in some sections at exceptionally low prices. One notable instance of this was the landing of cargo of over 1,000,000 gallons of Mexican gasoline recently at Norfolk, Va. This material was sold at such a low price that local marketers were forced to cut prices to meet the competition. Retail prices were cut to 17 and 18 cents a gallon, these quotations representing slashes of from 5 to 6 cents below those previously prevailing.

The fact is that the market here is even more depressed by offerings of tanker lots of gasoline at low prices than by dumping of western material shipped here in tank cars. The principal sources of the low-priced material are Mexico and California, with California probably being the more important factor.

In the South Atlantic, conditions were rendered more acute by the reduction of 3 cents a gallon in tank wagon and retail prices by the Standard Oil Co. of Kentucky in Florida.

Competition in the retail gasoline market is still very keen. This is due to many factors, one being the heavy rate of construction of retail stations by large oil companies. Some of these have only entered the eastern market in recent years, and while they have built up big chains of stations, they have found it difficult to build up sales proportionately in competition with the old line marketers. In some quarters the situation is regarded as serious, in as much as it is not known just how far these concerns will be willing to go in the way of price slashing to garner new business. It is felt, however, that retail prices have not yet reached bottom.

Those who are looking for a big seasonal drop in gasoline consumption in the East this fall, with consequent further weakness in prices, may not see their fears justified. The East has experienced one of the rainiest and coldest summers in many years. Thursday the thermometer in New York reached 55, being the coldest August 25 in 54 years. The immediate outlook is for continued cool and cloudy weather. Some oil men look for the fall to make up in part for the abnormally low temperatures of the summer. They believe it possible that we may have abnormally warm weather in September, October and possibly November.

In addition there is the factor of industrial consumption of gasoline, which is becoming more and more important, and is going far to offset the seasonal nature of the gasoline market. If we have heavy industrial and commercial activity during the coming three months, as business authorities now predict, the consumption of gasoline in trucks and buses will probably be greater than at present.

Kerosene Dull

The kerosene market is dull. Refiners are overstocked but are not anxious to move their product at present because they anticipate a big demand for furnace oil this fall and winter. Judging from the big advertising campaign now under way on the part of a half dozen manufacturers of oil burners, the number of installations will be considerably greater than last year. Refiners look upon this field as a possible outlet for their kerosene and are therefore not worried about the increase in stocks on hand.

Gas and Fuel Oil

The gas oil and fuel oil markets are unchanged from last week. No particular change in either demand or supply has been noted. If anything, offerings of California fuel oil are a little heavier, but this has not affected prices.

The principal chance of lower fuel oil prices is seen in lower freight rates now in effect between the Pacific and Atlantic Coasts. A drop of 15 cents was recorded last week, and this would mean a possible proportionate reduction in bunker fuel oil, depending on whether a substantial number of tankers can be had at the lower rate.

The advance in Diesel oil use in domestic and marine power units is also an important factor in as much as this is having the effect of forcing coal prices down a little.

Lubricating Oils

The lubricating market is steady. Demand for motor oils is fairly good and cylinder oils are in increasing demand. Texas red and pale oils are in greater supply at present. Bright stocks are moving briskly at recent increased price levels.

Paraffin Wax

The increase in the price of 135-137 refined wax has been easily held. Demand is good and firmness is indicated for all grades of crude and refined. Stocks at refineries have been drawn upon to some extent and in some quarters the wax situation is believed to have turned the corner.

Petrolatum

Although competition is keen in the petrolatum market, jobbers are experiencing a good demand and prices are being maintained. There is hope that dark green will sell higher in the near future, in view of the improvement in other grades. This grade, however, continues to be quoted at 1¾ cents a pound, due to continued offerings from western Pennsylvania plants.

Export Situation

The oil export situation here during the past week has shown no particular change. Lubricating oil and wax shipments are holding up well. Shipments of both gasoline and kerosene in cases are also fairly heavy. But the bulk market is rather dull. Export prices are practically unchanged.

The foreign demand for refined wax was good during the week. Inquiries were in large volume and the actual movement for the week exceeded 1,500,000 pounds. The crude scale wax market experienced a slight decline.

Local exporters are especially gratified at the demand for gasoline in cases, largely from South America. Brazil is now a heavy buyer, while Argentina and Uruguay are also taking larger quantities than they have been accustomed to. However, the market for cased gasoline in actual volume is not offsetting the weakness in the bulk market. Cased gasoline shipments generally run from 250,000 to 500,000 gallons, while bulk exports are in lots of 1,000,000 gallons up.

The steady improvement in the demand for wax for export is having a stimulating effect on prices. Refined of 135-137 a.m.p. is being bid up slightly.

It is many weeks since a shipment of gas oil or fuel oil left this port for the export market. This is not due to any decline in demand abroad, but to the fact that these products can be obtained more cheaply at the Gulf Coast, in California, or in Venezuela.

Rumanian Oil Situation

Rumanian authorities have of late almost eliminated export taxes and considerably reduced the transport rates on refined products handled for export, according to advices from Bucharest. The Government has gone about as far as it can go toward assisting petroleum companies in cutting down expenses, and operators must now do their part by cutting down administration expenses.

It is entirely misleading to point out that crude oil production this year is at a rate of close to 4,000,000 metric tons a year, an increase of 20 per cent over last year and nearly 100 per cent compared with 1925. Crude oil today is

(Continued on Page 123)

Why worry about your tanks? It's better, safer and cheaper to Oceco equip.

The Oceco Flame Arrestor is approved by the Underwriters' Laboratories; others have been called flame arrestors by their sponsors but have any of them successfully passed the tests? Over 2000 Oceco Flame Arrestors are in use today—wherever oil is stored—and no tight tank thus equipped has ever been lost by fire. The Oil Conservation Engineering Co., 877 Addison Rd., Cleveland, Ohio.

Chief Characteristics of Motor Fuels

Refinery and Automotive Engineers Discuss Relative Importance of Volatility and Antiknock in Gasolines

By A. Ludlow Clayden
Research Engineer, Sun Oil Co.

Recent investigations have shown that the government method of testing gasoline, while simple and easy to perform, is only a rough indication of volatility, and it does not follow necessarily that two gasolines, both meeting the same specification, will perform similarly in an engine so far as volatility is concerned. The Bureau of Standards, in work carried out during the past two years, has shown that for easy starting it is necessary to know much more about the early stages of distillation, and that more accurate observation of the detailed boiling points of the first 20 per cent is required. Several other laboratory methods of testing volatility have been devised and some of them are theoretically and practically much better, but they require more elaborate apparatus and probably more skilled operation; consequently the present addition is to obtain a better interpretation of the results obtainable from the conventional method of testing.

Volatility, however, has very little to do with the possibilities for economical utilization of the fuel. It is necessary that gasoline should have volatility enough to enable a cold engine to start. It is also necessary that it should not contain molecules so complex that they cannot, most of them, be burned; but these are conditions that seem easy to meet.

It is inevitable that the price of coal, of metals and of crude oil will gradually increase as the labor of obtaining them increases; therefore, to maintain the balance we must utilize these raw materials more economically. At present, the only means we have for economizing gasoline is to increase the compression of gasoline engines. This brings in the all-important characteristic of motor fuel, which is its tendency to detonate. It has often been said that nondetonating fuel gives the piston a steady push throughout its firing stroke, whereas a detonating fuel gives a violent kick, releasing too much energy when the piston is near dead center and too little when it is on the way down. A paper on the Ultra-violet Spectroscopy of Engine Fuel Flames, by G. L. Clark and A. L. Henne, describes studies of the stages of combustion by means of the spectroscope through a quartz window in the cylinder head and has furnished experimental proof that this picture is a true one.

No doubt it would be possible to design an engine that would operate with reasonable thermal efficiency on successive explosions of gunpowder, but it is doubtful if such an engine could be of the piston-and-cylinder type. It probably is easier to change the chemical constitution of gasoline so that its detonating tendency is reduced than it is to change the type of engine to suit the detonating fuel.

More than one-half of our gasoline is produced at present by distillation from crude oil, followed by chemical or mechanical treatment for removal of small quantities of materials having bad odors or color. A rapidly increasing proportion, which probably will soon be at least one-half, is produced by subjecting the crude oil to very high temperatures, thereby converting into gasoline portions of the crude which normally would be obtained as lubricants. These cracking processes are capable of control so that the final product is richer in nondetonating or antiknock constituents. We are only at the beginning of the development of this phase of the cracking process. At present most cracking plants are being run to produce the highest possible yield of gasoline conforming to government specification; but, while we are finding out how to vary the treatment to improve the antiknock quality, we are also discovering that fuels more volatile than those of government specification can be produced at an insignificant increase in cost. By this I do not mean that any refiner with cracking equipment can do as he likes on volatility or antiknock quality. The equipment we have will produce only certain results, but as new equipment is installed improvements go with it. Cracking plants are not duplicated many times; almost every new one embodies some modifications tending toward both more economical operation and an improved product, so there is every reason to feel satisfied that for many years to come the tendency of gasoline will be toward a fuel suitable for steadily increasing compression and toward slightly improving volatility.

Engine Development

The question often is asked: How are automobile manufacturers to increase compression until the distribution of suitable fuel is nation-wide? The refiner asks, in turn: Why should we trouble to produce nondetonating fuel until there is a real need for it? The answer, of course, is that the two developments must go together; and a point which is often lost sight of is that the antiknock fuel is of distinct advantage in existing engines. I should like to give just one example, admitting beforehand that it is rather an exceptional case.

In a rather hilly city a large taxicab organization recently made a 30-day trial of two gasolines, both approximating government specification while differing mainly in their detonating characteristics. Two groups of 25 cabs each were set aside for this test and no carbureter, spark or other adjustments were made. The performance of the individual cabs differed considerably, but the final results appear as follows:

Gasoline used—	Ordinary	Antiknock
Total cab miles	59,900.1	62,917.5
Total gasoline consumption, miles	6,270.5	5,784.5
Miles per gallon	9.554	10.876

These figures show an advantage of 13.81 per cent in consumption with the antiknock fuel. This is undoubtedly more than ordinarily would be noticed in a passenger car, but it is particularly significant because this test was made during the winter when the amount of idle engine running was great and traffic conditions were extremely heavy. My excuse for showing these figures is that they are very interesting and bring out some of the points on which I have been commenting. The results are characteristic of those that could be obtained by any similar set of comparisons.

Most detonation tests are made in the laboratory, and I do not think it is realized generally how easy it is and with what a fair degree of accuracy detonation tests can be made on the road.

GASOLINE SPECIFICATIONS

The accompanying article is part of a paper by Mr. Clayden on "Gasoline—Past, Present and Future" presented at the Buffalo section meeting of the Society of Automotive Engineers and reprinted from the September issue of the society's journal.

The presentation of the paper was followed by a discussion in which several members connected with the automotive and refining industries took part. The importance of volatility and antiknock characteristics were the principal subjects discussed.

Discuss Sulphur at Buffalo Meeting

Content in Gasoline Meeting Government Specifications Not Harmful to Motors. Fuels Constantly Improving

George G. Brown, professor of chemical engineering, University of Michigan; head of research department, Association of Natural Gasoline Manufacturers: My experience in testing the antiknock properties of fuel on the road may be of interest in verifying the results reported by Mr. Clayden. As an experiment, I had three thirty-seconds of an inch planed off of the underside of the engine head of my car. This converted the engine into a relatively high-compression engine which gave an increase in mileage from about 12½ to about 13 miles per gallon under ordinary driving conditions with the usual run of fuel obtained from gasoline pumps and without special regard to antiknock qualities. This shows, I think, what may be expected from the use of higher compression engines even if the fuel does not possess sufficient antiknock properties to prevent audible detonation and no change is made in the gear ratio. With the high compression head the engine now pulls steadily at wide open throttle until stalled, without knocking, when using a fuel that corresponds in antiknock value to ethyl gasoline. With ordinary gasoline the engine sometimes knocks rather badly in climbing hills and the gears have to be shifted.

Mr. Clayden made one statement in passing to which I am inclined to take exception. He stated in effect that antiknock value is more important than the volatility of fuel. It is true that antiknock properties will become more important than at present as engines of higher compressions are used, but volatility is now, in my opinion, the most important property of motor fuel. This is particularly the case in cold weather when many drivers change the carbureter adjustment so that their cars will run satisfactorily in intermittent service. If, however, fuel of sufficient volatility can be supplied that will make it unnecessary to change the adjustment, the driver will obtain better mileage. This increase in mileage and improved performance, due to proper volatility, is greater than can be expected from an increase in antiknock value without increased volatility at low temperatures, in the case of present-day engines.

Volatility Important

T. G. Delbridge, supervisor of process division, Atlantic Refining Co.: So far as quality goes, I think Mr. Clayden may have left an impression that I do not believe is entirely right; that is, as to the importance of detonation. I believe that detonation will increase in importance, but I do not believe it is today the most important thing about gasoline. I am much inclined to agree with what I think is Doctor Brown's position, that if we must choose between volatility and detonation, I would rather try to get the volatility just right for a given engine and take a chance on detonation. I say that with some reluctance, as I do not feel really qualified to express that as a firm opinion. There is a reasonable doubt as to the relative importance of these two points. I think detonation will have to be provided against. If it is, it will be done through co-operative work largely among the colleges and universities, the Bureau of Standards, the Society, and oil refiners.

One point that I want to emphasize is that gravity has absolutely nothing to do with the quality of gasoline.

Chairman W. R. Gordon: Do you think there is any danger in using benzol due to sulphur in the commercial product?

Mr. Delbridge: Benzol put out by the reputable firms 5 or 6 years ago contained about 0.22 per cent of sulphur, which did no harm, because, if the benzol was blended with gasoline in the usual proportion of 40 per cent benzol and 60 per cent gasoline, the sulphur content would drop down so that it would not be at all dangerous.

Benzol that was not properly refined has been put out in some localities, particularly in the southern states. I think the sulphur content ran as high as 1 per cent or a little more. There is real danger with a fuel like that, particularly in cold weather when there is more or less condensation of water in the crankcase. Combustion produces sulphur dioxide, which is then oxidized, forming the trioxide that in turn combines with the water in the crankcase to form sulphuric acid and constitutes a great menace from corrosion. However, benzol blends that are put out by reputable companies would not contain sufficient sulphur to be dangerous, so far as I know?

Chairman Gordon: What is the danger from sulphur in commercial gasoline? We have taken drippings from the tail pipe of the car with the engine idling and by tests have found sulphuric acid present.

No Danger From Sulphur

Mr. Delbridge: Gasoline that meets the present specifications has the maximum of 0.1 per cent of sulphur. That figure probably is lower than it actually needs to be, but in drawing up specifications for the Federal Government it is necessary to be safe. I do not believe that there is any danger from sulphur in any of the gasoline of today except possibly at extremely low temperature or in cars in which considerable water is permitted to get into the crankcase. So far as I remember very few gasolines are now sold that contain more than 0.10 per cent of sulphur I should say the average is only 0.07 or 0.08 per cent, taking the country as a whole.

Chairman Gordon: How is the layman to distinguish between good gasoline and poor gasoline If we could have some marks by which we could buy our gasoline, it would help.

A. Ludlow Clayden: He cannot do so except by the somewhat clumsy method of trial and estimation. We cannot distinguish between gasolines very well by specifications, and when the specification is lacking or is not understood, the situation is worse; all one can do is to try the fuel. But the average man has this protection, that never in the history of the oil industry were refiners trying so

hard as they are today to produce the best possible fuel.

I was very glad that Doctor Brown described the equilibrium-air method of testing for volatility. I agree with him and Doctor Delbridge that perhaps I did suggest in my paper that volatility is of less importance than it really is. It is, of course, of extreme importance, and, like Doctor Delbridge, if it were necessary to choose between volatility and antiknock quality, I too should give considerable attention to the volatility.

Generally throughout the eastern seaboard, the antiknock quality of most of the gasoline is distinctly superior to that of gasoline in the West and Middle West, and it is still better in California, where the average antiknock quality of gasoline is the highest for any section of the country.

The automobile builder, I think, must make the next few moves. This question of more accurate heat control, and heat control at the right point can be studied rather quickly and thoroughly, and I think good results can be obtained. It is worth while, I believe, to leave off a little nickelplating and put a little more mechanism under the hood to reduce the gasoline bill. More intensive work can be done on combustion chamber design than has been done. Many persons seem to assume that since Ricardo produced his voluminous works on the subject, everything pertaining to this question has been settled, but I do not think that Ricardo did more than write an elaborate preface; most of the work remains to be done. We are ignorant of many facts about materials from which engines should be constructed. Unquestionably the detonating tendency of an engine is much less with aluminum pistons than with iron pistons. The tendency is also reduced by the use of an aluminum cylinder head instead of an iron cylinder head, but to what extent no one knows.

Certainly much remains to be done on a detailed study of temperatures in engines. Detonation occurs readily in a great many engines simply because some particular spot in them becomes very hot. In one car that is manufactured in large numbers the temperature of some spots in each cylinder head would run up to about 450 degrees Fahrenheit when the outlet water temperature was only 160 degrees Fahrenheit, and detonation would occur readily, but slight changes in the internal design of the cylinder head made a great difference in this respect. That is the kind of thing that the automotive engineer can study usefully, and I believe he is doing so in the majority of cases.

Motor Performance

P. B. Jackson, assistant engineer, Pierce-Arrow Motor Car Co.: It would be interesting to have Mr. Clayden tell about the detonating characteristics of different fuels in the same engine. In certain T-head engines having a compression ratio of 4¼ to 1, you can get severe detonation at wide open throttle conditions at speeds of 500 r.p.m. and less with the best fuel obtainable. Then, with another engine and using a very poor fuel, you can actually have compression ratios of more than 5 to 1, without detonation. It seems to me, contrary to Mr. Clayden's paper, that it would be easier to change the engine than change the fuel all over the country. When I asked Mr. Clayden how the companies that exhibited cars in the New York City automobile show with compression ratios of more than 5¼ to 1 will meet the situation, he told me the engines will operate all right in the East but not in the West. That is a serious matter.

Mr. Clayden: Mr. Jackson's question really amounts to this: Will a series of gasolines of different antiknock qualities perform differently in engines of widely different design Or, put another way, would we have to grade the gasoline on the detonating characteristics of one engine and grade them the same on detonating characteristics of another engine?

If we were to use an average commercial gasoline in an engine having a combustion chamber of the worst conceivable design, we would have to keep the compression ratio down to not much more than 4 to 1; whereas if the same gasoline were used in an engine having a combustion chamber of the best conceivable design, we could not raise the compression ratio much above 5 to 1.

Heating Manifold

R. S. Ellis, Foss-Hughes Co.: What is the opinion of the speakers regarding heat control of the manifold with relation to the various kinds of gasoline and the effect that could be produced by such control on detonation and the volatility of the charge as it enters the cylinder?

Mr. Brown: Heating the manifold is inadvisable from some standpoints but is necessary from others. It increases the tendency of the fuel to knock, but is particularly necessary when operating at light loads with our present motor fuels; therefore heat should be applied in varying amounts depending upon the load on the engine and the temperature. If the heat is controlled in this way, the manifold is heated when necessary but not enough to increase noticeably the tendency of the engine to knock when laboring at open throttle.

Mr. Clayden: Most people cannot or do not adjust a carburetor for cold weather conditions so that it supplies a somewhat richer mixture that enables them to start the engine more easily. This function could easily be taken care of by a thermostat at a cost of $1 or $1.25 per car. I do not think the automobile manufacturer considers it worth $1.25 to help the user save 10 per cent of his fuel in cold weather. The proportion of heat in the manifold never has been worked out properly. It can be regulated to a considerable extent by thermostatic control.

EASTERN MARKET IS MORE STABILIZED

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worth about one-half as much as it was worth a year ago, while drilling costs have increased considerably since last year. In other words, it costs more to get oil that sells for less.

Increased production costs, plus keenness of Russian and American competition, are mainly responsible for the present situation. It is stated that Russian cased oil is now being offered in Constantinople at a price lower than it costs to make the can and case in Rumania, while American oil is being sold in Ruschouk, which is immediately across the Danube from Rumania's oil port of Giurgiu. Manifestly, therefore, Rumanian oil products shipped to Great Britain and western Europe are not being handled at a reasonable profit.

Export Notes

During the first four months of 1927 Holland imported 68,018 metric tons of kerosene, valued at 6,098,000 florins, which is practically the same as that for the corresponding period last year. Due to the increasing number of automobiles, the imports of motor spirit are on the increase. From January to April there were imported 45,626 tons of gasoline, as compared with 37,475 tons for the same period of 1926. Of this total 25,706 tons came from the United States, and during the period Persian motor spirit made its first appearance, to the extent of 3,000 tons.

Expansion of the Anglo-Persian Oil Co. in France is announced. Through its subsidiary, the Societe Generales des Huiles, the company is going into the refining of lubricating oil and wax through an addition to an existing plant in that country.

The French Ministry of Marine has purchased 33,000 tons of the fuel oil from the Russian Naphtha Syndicate and 22,000 tons from the Standard Oil Co. of New Jersey.

Czecho-Slovakian refiners are reported to be negotiating for the purchase of 70,000 tons of Soviet crude oil.

Almost one-third of the gasoline produced in Canadian refineries in 1926 was the result of "cracking." Cracking accounted for 69,839,231 imperial gallons of a total gasoline production of 221,146,704 gallons. Almost 200,000,000 gallons of gas and fuel oil were used in the "cracking" processes.

Principal Exports

The following table shows principal exports of petroleum and petroleum products from New York during the last three weeks (all figures in gallons unless otherwise noted):

	Aug. 24	Aug. 17	Aug. 10
Gasoline:			
Bulk		5,952,911	2,673,192
Cases	2,637,210	169,500	1,478,890
Kerosene:			
Bulk		3,506,000	
Cases	2,248,860	690,840	717,750
Lubricating oil:			
Bulk		1,485,000	
Barrels	871,050	1,389,500	696,700
Cases	163,640	107,560	142,220
Lubricating grease:			
Bbls. (lbs.)	135,000		
Paraffin wax:			
Bags (lbs.)	1,577,180	220,000	255,200
Bbls. (lbs.)	875,900		
Pet. asphalt:			
Bbls. (lbs.)	749		6,397

The foregoing figures include all shipments of 500 bbls, 1,000 cases, or over.

Tanker Market and Movement

A decline of approximately 15 cents a barrel in charter rates for the California-Atlantic Coast trade was the feature of the tanker market during the past week. This was indicated by a fixture of an unnamed vessel for 65 cents a barrel for September loading. The last previous fixture reported was at 80 cents.

Tanker rates are, in fact, weakening all along the line. The cause of this is not quite evident. Movement of oil in all ocean routes continues heavy. There have not been many new vessels completed under American registry. Perhaps it is just a coincidence that the few vessels being offered for chartering are not finding a ready market.

Tankers carried almost 5,000,000 bbls. of oil to the Atlantic Coast during the week ended August 24.

New fixtures include the following:

Tanker Republic (Am.), September loading, clean oil, Gulf to north of Hatteras, 22½ cents a barrel.

Tanker Alebeto (Br.), time charter, consecutive voyages to United Kingdom.

The sale of the Anglo-Saxon Petroleum Co. tankers Acasta and Adna is reported to Norwegian buyers. Terms were reported as £60,000 each with charter for 10 years, first five at 6s and second five at 5s. 6d. per ton per month.

Of the receipts of oil at Atlantic ports for the week ended August 24 of 4,872,000 bbls., the Gulf Coast accounted for 2,950,000, California 838,000 and imports were 1,084,000 bbls. Imports from Mexico for the first time in many weeks exceeded 100,000 barrels a day. California contributed at the heavy rate of 120,000 bbls. a day. The Gulf Coast shipped 421,000 bbls. a day.

Daily Average Receipts

The following table shows estimated daily average receipts of crude and refined oil by water at Atlantic Coast ports for the last three weeks; also monthly record for the last 12 months (figures in barrels):

	Week ended		
	Aug. 24	Aug. 17	Aug. 10
Gulf Coast	421,000	430,000	323,000
Pacific Coast	120,000	103,000	53,000
Mexico	105,000	88,000	79,000
South America	50,000	78,000	88,000
Total	696,000	699,000	543,000

Daily Averages by Months

1927:	Gulf	Pacific	Mex.	S. Am.	Total
July	406,000	83,000	78,000	49,000	616,000
June	378,000	118,000	68,000	47,000	611,000
May	332,000	58,000	91,000	53,000	534,000
April	388,000	93,000	69,000	61,000	611,000
Mch.	346,000	103,000	36,000	81,000	565,000
Feb.	379,000	89,000	40,000	48,000	556,000
Jan.	362,000	73,000	49,000	61,000	545,000
1926:					
Dec.	363,000	57,000	49,000	61,000	530,000
Nov.	335,000	62,000	56,000	40,000	493,000
Oct.	270,000	71,000	61,000	43,000	445,000
Sept.	299,000	98,000	63,000	58,000	518,000
Aug.	329,000	61,000	71,000	46,000	498,000

The foregoing figures are based on the carrying capacity of incoming oil-laden tankers.

LITTLE ACTIVITY SHOWN IN CHICAGO MARKET

(Continued from Page 120)

from a purchase outright to lease for a period. There are distributors who are able to sell their gasoline and oils at a profitable price and keep their business out of the red. In a great number of instances this has been done by the old method of quality merchandise and letting the public know about it. This week a large organization in a near-by city called attention to a page advertisement that they had run in the leading daily of their city. It was all quality, quality of gasoline, of lubricating oils, of service. A leading lubricating oil concern states that this has been the best season they have ever had and they are not new and it has all been because of the public demand for high quality lubricating oils.

Higher Gravity Demand

The demand continued to be almost entirely for the U. S. Motor grade, although some refiners report that their sales of higher gravities are improving a little. This is not generally so reported, but the cooler weather will naturally increase the demand for these grades of gasoline. Prices are so far below the usual cost of these higher gravities that a dealer could afford to supply even 68-70 at the same price as the U. S. Motor gasoline. This gravity is today lower in price than the Motor grade was in the early spring. U. S. Motor gasoline was reduced by the Barnsdall company on last Monday morning from 6½ to 6¼ cents to the trade, and while the other refiners did not immediately reduce their open quotations they did meet competition and the 6¼-cent price was pretty generally established by the middle of last week, with occasional sales of single cars to old customers and small buyers going at 6⅜ and even at 6½ cents, but no responsible, untrammeled buyer was obliged to pay more than 6¼ cents fo rthe U. S. Motor gasoline. At first it was rather difficult for those buying for re-sale to purchase at 6 cents, which they expected to do, but gradually the price was generally named.

Late one afternoon of last week a leading marketer called and asked for particulars regarding a cut in Mid-Continent crude. When told that there had been none posted to that time he wanted to know why they had been flooded with offers of gasoline from refiners some of whom had not been on their books this year. The explanation seemed to be lack of orders at the refineries with mounting stocks, perhaps influenced by the thought that crude might be cut, and it was well to have as little in storage of higher priced crude as possible.

Price Quotations

The common quotation to the trade on the 60-62 400 endpoint was 6¾ cents and on 64-66 375 it was 7 cents, but market letters went out late last week offering these products at less than these prices. The Atlantic Refining Co. was repored to have bought 500,000 gallons of 60-62 400 endpoint at 6½ cents in North Texas, but it did not change the situation here. As one dealer said, "What does a couple of train loads amount to, it's just a drop in the bucket." Antiknock specials are selling well for the most part, although some refiners of these motor fuels do not seem overly enthusiastic regarding them and one inserts a clause in its contracts which permits the customer to shift to the U. S. Motor grade if that customer so desires. There is some complaint from dealers that their motorist trade state they do not get as good mileage per gallon with these antiknock motor fuels as they do with the regular grade. This seems to be a disputed point and, anyway, they do get a quick getaway which most of them want. Opinions here vary as to the future of prices, but none sees higher prices for a while at least.

Kerosene Steady

Kerosene continues steady and is rather firmly held. Several refiners state they are sold ahead or nearly so and others are buying for their own distribution. The time of the year is at hand when the records of past seasons show that there is an increase in kerosene sales due to several causes of which the use of the tractor is but one. The price of kerosene to the users is very close to that of gasoline, at many points the difference in cost being but 1 cent when the tax is rebated as would be the case with gasoline used on the farms. Several jobbers report that more gasoline is being used as tractor fuel than kerosene in their neighborhood. For the most part these reports come from the Northwest, where cool nights may make gasoline the quicker fuel to start a cold machine. The market for the 41-43 gravity is steady at 4 to 4¼ cents, the latter price being asked by some refiners, who claim that their kerosene is better. There is also a demand for the 42-44 grade and few refiners are making it the cut right now. Some of

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REFINING AND MARKETING

Blend Crude and Natural Gasoline For Transportation

Contracts have been entered into between the Humble Oil & Refining Co. and the Phillips Petroleum Co. and the Skelly Oil Co. which will provide a market outlet for a large part of the natural gasoline output of the Panhandle area of Texas and which also is expected to facilitate the movement of the Panhandle crude oil by pipe line to the Gulf Coast. The amount of natural gasoline involved in the agreements is said to be approximately 125,000 gallons daily. The Humble company is buying the gasoline from the Phillips and the Skelly companies, which are the two largest natural gasoline manufacturers in the Panhandle area.

In connection with this agreement, the Humble companies are trying out a method of transporting the gasoline which is being watched with considerable interest in the Panhandle. The gasoline is being moved by pipe line from the plants of the Skelly and Phillips companies to the Burnett pipe station of the Humble Pipe Line Co. This is the first station of the Humble's 10-inch trunk line, which extends from the Panhandle Field to the Gulf Coast. The natural gasoline at this point is being mixed with the crude oil in the line on a basis of about 10 per cent natural gasoline.

Tests made by the Humble company show that this blending of the natural gasoline with the crude oil materially lowers the cold test of the latter and facilitates its movement by pipe line. As is generally known, the pipe line movement of Panhandle crude oil has been a serious problem from the time the field was first discovered. This is due to the heavy wax content, reflected in the relatively high cold test, which in some cases has made it impossible to move the crude oil during the winter months. The Humble company is understood to have made exhaustive tests in laboratories relative to the action of the natural gasoline on the crude.

The practice of blending the natural gasoline back with the crude for pipe line transportation was at one time quite common in the industry. This was not done at that time to facilitate the movement of the crude oil, but was considered a cheap method of getting the natural gasoline to the refineries. The main objection at that time was the large evaporation loss of the natural gasoline.

The Humble pipe line is new and with gas-tight work tanks on the line it is expected that the evaporation losses can be reduced to a minimum. Should the losses not be prohibitive and the practice add to the volume of crude oil which can be moved in the pipe line it is expected that the method of transportation will be continued through the winter months. The natural gasoline will probably be moved by tank cars during the summer months.

PICNIC WEEK IN CHICAGO

CHICAGO, Aug. 27.—This was picnic week in the Chicago oil industry. Several of the large organizations held the annual outing of their office forces during the week. Among them were the Marland Refining Co. and the Texas Company, which took Wednesday off to enjoy themselves and on Thursday the office force of the Carson Petroleum Co. was closed all day.

BURNER MAKERS PUSH SALES

CHICAGO, Aug. 27.—Several of the leading makers of oil burners for domestic use have been offering special inducements to home owners who will place orders during the current month for immediate installation. A special price is named with a small or no down payment, installations to begin when the burner is to be used, usually October. Managers of some of these report the response has been very gratifying. All say the domestic oil burner is no longer an experiment in the minds of possible users. Many want an oil burner, the only question being which is the best suited for their purpose and purse.

REFINED PRODUCTS MADE IN CANADA SHOW GOOD GAIN IN VALUE IN 1926

CHATHAM, Ontario, Aug. 29.—A recent bulletin issued by the Dominion Bureau of Statistics at Ottawa under authority of Hon. James Malcolm, minister of trade and commerce, gives figures covering the petroleum products industry in Canada for the year 1926. The bulletin says in part:

Output of petroleum products from Canadian plants in 1926 amounted in value to $67,956,301, an increase of $17,000,000 over the corresponding figure in 1925. This figure includes the output of petroleum refineries valued at $67,330,230, and the production of plants compounding lubricating oils and greases worth $626,071.

Reports were received from 23 plants, of which 17 were oil refineries and six were engaged in compounding lubricating oils and greases. Capital employed was reported at $57,178,125; the average number of employes was 3,753 and payments for salaries and wages totaled $5,892,399. Raw materials cost $51,172,159, and the value added by manufacturing amounted to $16,784,142.

Of the 17 refineries in operation 5 were in Alberta, 4 in Ontario, 3 in British Columbia, 2 in Quebec and 1 each in Saskatchewan, Manitoba and Nova Scotia, and of the 6 plants producing lubricating oils, greases, etc., 3 were in Ontario and 3 in Quebec.

Production of gasoline during the year totaled 221,146,704 gallons, of which 63,839,321 gallons were obtained by the cracking processes. Final output of fuel and gas oils totaled 228,474,212 gallons, and of this total 38,473,341 gallons were used for fuel purposes in the reporting plants and 190,000,871 gallons were made for sale. It is estimated that a further 197,470,904 gallons of fuel and gas oils were used in the cracking processes.

The following tables deal with various aspects of the petroleum products industry in Canada:

SUMMARY STATISTICS OF THE PETROLEUM PRODUCTS INDUSTRY IN CANADA, 1922-1926

	No. of Plants	Capital Employed	No. of Employes	Salaries, Wages	Cost of Materials	Sell. value of Products	Value added by Mfg.
1922	19	$62,054,029	3,555	$5,492,683	$38,413,191	$57,035,563	$18,622,372
1923	20	61,027,704	4,257	5,648,320	36,816,696	46,280,534	9,463,838
1924	25	53,795,794	3,689	5,749,705	37,092,711	49,411,067	12,318,356
1925	21	50,580,549	3,738	5,775,046	58,261,024	50,762,127	12,501,103
1926	23	57,178,125	3,753	5,892,399	51,172,159	67,956,301	16,784,142

PRINCIPAL STATISTICS OF THE PETROLEUM PRODUCTS INDUSTRY IN CANADA, BY PROVINCES—1925 AND 1926

	1925				1926			
	No. of Plants	No. of Employes	Salaries and Wages	Selling Value of Products	No. of Plants	No. of Employes	Salaries and Wages	Selling Value of Products
Quebec	4	676	$ 979,712	$ 8,667,838	5	612	$ 901,445	$13,936,396
Ontario	7	1,824	2,797,730	20,425,854	7	1,895	2,452,163	24,680,439
Alberta	4	227	373,757	5,458,412	5	324	531,919	8,374,671
Br. Columbia	.....	.....	.....	.....	3	367	613,639	4,981,574
Canada*	21	3,738	$5,775,046	$50,762,127	23	3,753	$5,892,399	$67,956,301

* Includes also data for 2 plants in British Columbia in 1925 and 1 in each of Nova Scotia, New Brunswick, Manitoba and Saskatchewan in 1925 and 1926.

MATERIALS USED IN THE PETROLEUM PRODUCTS INDUSTRY IN CANADA—1925-26

	1925 Quantity	1925 Cost at Works	1926 Quantity	1926 Cost at Works
*Crude oil (Canadian) imp. gal.	12,337,192	1,511,181	12,203,286	1,673,632
Crude oil (imported) imp. gal.	432,781,409	33,344,615	573,263,043	45,396,649
Sulphuric acid, 66° Be., lb.	42,343,604	447,528	53,919,554	423,229
Sulphur (not used in acid mfr.) lb.	141,265	3,988	155,076	4,283
Caustic soda, lb.	4,220,371	154,150	6,216,823	234,326
Litharge, lb.	549,450	59,825	765,817	80,561
Animal oils, gal.	32,438	30,656	28,084	32,848
Fullers earth, lb.	1,281,190	14,433	4,784,069	50,460
Compounding materials, lb.	.....	510,735	.....	700,063
Mineral oils, gal.	948,110	209,503	1,016,213	241,211
Other oils and greases	.....	171,000	.....	67,269
All other material	.....	267,671	.....	282,601
Ship. containers, boxes, bbls., etc.	.....	1,535,439	.....	1,983,027
Total		$38,261,024		$51,172,159

* Includes crude naphtha from Royalite Oil Co. wells in Alberta.

PRODUCTS OF THE PETROLEUM PRODUCTS INDUSTRY IN CANADA—1925-1926

Unit of Measure	1925 Quantity	1925 Selling Value	1926 Quantity	1926 Selling Value
(a) Made for Sale)—				
Gasoline, imp. gal.	164,829,475	27,635,151	222,114,669	40,462,466
Petroleum spirits, including engine distillate, V. M. & P. naphtha, etc.	1,848,429	340,110	1,650,956	245,841
Kerosene, imp. gal.	45,012,566	5,967,298	36,629,657	6,156,976
Fuel and gas oil, imp. gal.	135,954,156	7,771,405	190,000,871	10,219,900
Lubricating oils, imp. gal.	15,775,654	3,129,228	17,907,102	4,110,793
Grease, lb.	9,411,396	247,909	11,331,534	293,370
Petroleum coke, short ton	28,855	218,105	49,672	297,021
Wax and candles, lb.	15,736,670	734,308	9,858,490	648,303
Asphalt, gal.	19,940,729	1,845,402	20,720,342	2,035,624
Other products	.....	454,055	.....	1,089,923
Total	.....	$48,342,971	.....	$65,560,217
(b) Intermediate Products—Made for use (chiefly as fuel) in the manufacture of petroleum products in Canada—				
Gasoline, imp. gal.	20,597	3,386	32,035	5,402
Kerosene, imp. gal.	33,893	4,015	34,860	5,410
Fuel and gas oils, imp. gal.	36,433,086	1,880,850	38,473,341	1,787,420
Lubricating oils, imp. gal.	14,198	2,406	15,751	3,454
Petroleum coke, short ton	5,163	30,586	1,873	10,422
Acid coke, short ton	9,170	33,014	11,802	39,904
Acid oil, imp. gal.	1,395,470	64,030	954,080	44,949
Still gas, m. cu. ft.	1,019,755	360,846	1,532,430	493,314
Other products	.....	40,223	.....	5,809
Total	.....	2,419,156	.....	2,396,084
Grand total	.....	$50,762,123	.....	$67,956,301

SYNTHETIC GASOLINE NOT A COMPETITOR

PITTSBURGH, Pa., Aug. 29.—Petroleum refiners in the United States do not need to fear any immediate competition from synthetic gasoline manufactured from coal and other raw material other than crude petroleum, according to Dr. Thomas S. Baker, president of the Carnegie Institute of Technology. Doctor Baker has just returned from a European trip where he made a study of conditions relative to the production of motor fuels from coal and other minerals.

At the present time in Doctor Bakers' opinion it is impossible to produce these synthetic gasolines in large quantities at a cost comparable to gasoline obtained by refining crude petroleum. He said, however, that in Germany research programs are under way in regard to the utilization of the country's coal resources and important developments are to be expected.

The production of motor fuels from coal has been developed in this country to the point where there is no need to fear a shortage in the event our crude oil supplies are exhausted, according to Doctor Baker. He said that experimental work had been carried to the point where production on a large scale could be obtained if necessary.

REFINERY STOCKS IN JULY

The following is the American Petroleum Institute's summary for the month of July of the increases and decreases in stocks at refineries covering approximately 88 per cent of the operating capacity east of California:

	Bbls. of 42 Gals. Increase	Bbls. of 42 Gals. Decrease
Domestic crude oil	829,000	.....
Foreign crude oil	.....	437,000
Gasoline	.....	3,272,000
Kerosene	129,000	.....
Gas and fuel oils	2,071,000	.....
Lubricating oil	.....	99,000
Miscellaneous	852,000	.....
Total	3,881,000	3,808,000
Deduct	3,808,000	
Net increase	73,000	

A. O. M. A. CONVENTION

CHICAGO, Aug. 27.—Secretary Gilmore of the American Oil Men's Association states that plans are progressing very favorably for the convention of the organization to be held at West Baden, Ind., during November. Exhibition spaces are going rapidly and at this early date 50 out of the 74 spaces have been sold. The management expects that at least five of the leading refiners will have displays. The hotel at which the meeting will be held is built around a court which is roofed in with glass and makes an ideal space for exhibits.

TO ADDRESS N. P. A. MEETING

CHICAGO, Aug. 27.—James A. Gilmore, secretary of the American Oil Men's Association, and L. V. Nicholas, president of the Independent Oil Men of America, have been asked to address the meeting of the National Petroleum Association which is to be held at Atlantic City on September 14-16. This is the twenty-fifth annual convention of the organization.

I. O. M. A. MEETING

CHICAGO, Aug. 27.—The Independent Oil Men of America announces that the first national gathering of its members will be held at the Congress Hotel, Chicago, October 24-26, inclusive. This will be the first meeting of the membership since the consolidation of the two organizations. President L. V. Nicholas announces the meeting as the "Semiannual Fall Gathering." There will be no exhibits of equipment or products.

Brief Items for Plant Operators

CENTRIFUGE PRINCIPLE IN TREATING GASOLINE

Some means of processing gasoline to produce a stable colored product has led refiners and equipment manufacturers to investigate various methods and two refiners are commercially operating treating plants using centrifuges to accomplish this. The process is still in the development stage but the gasoline made has consistently tested from 28 to 30 color and has retained a color of 25 or better when exposed to the sunlight for several days. This applies to straightrun, cracked and blends of the two gasolines in various proportions so that any change in the plant operation would not affect the method of treating.

A refinery located in the Middle West and one in the Mid-Continent have done considerable work on the process. In the operation of the process the raw cracked gasoline is received direct from a tank which collects the supply being delivered by the Cross cracking units. Without any other treatment, the raw gasoline is pumped by a centrifugal pump directly into De Laval centrifuges at a rate of 30 to 33 bbls. per hour for each centrifuge. A supply of acid of 50 to 60 degree strength is taken in through the suction to the centrifugal pump, the amount being governed by a regulating valve and at present, about 5 pounds of acid is used per barrel. This is practically the same amount as was formerly used when treating the same kind of gasoline and before the centrifuges were installed. The principal feature of this is that the acid is removed in exactly the correct time as determined by experiments. This time is regulated by the flow in the pipe carrying the acid bearing gasoline from the pump where the acid is mixed with the gasoline, to the centrifuges. The acid is very thoroughly mixed with the gasoline and the period of contact is set as desired.

The acid is reduced in strength to about 45 degrees and may be recovered and concentrated, again. The gasoline which is discharged from the centrifuges contain a slight amount of acid which is in very finely divided particles and with the additional processing this slight amount of acid is not detrimental. The gasoline discharge from the centrifuges is pumped into a small agitator and a worm screw carries 3 pounds of 200 mesh Texas clay and one-quarter pound of lime per barrel of gasoline, into the agitator so that the inflow of gasoline, clay and lime are thoroughly mixed and a continuous stream equal in volume to the inflow, is pumped from the agitator through a No. 8 Sweetland press.

The stream of gasoline from the Sweetland press is delivered into agitators and sweetened with 20 degree doctor solutions. The Sweetland press is cleared about every six hours. This requires about 15 minutes. The centrifuges are cleaned once per 24 hours and as one is cleaned at a time, the process can be kept going continuously.

The cost is kept down to between one-fourth and one-half cent per gallon, generally averaging from 10 to 15 cents per barrel. Comparing this process with redistillation costs will show a saving of approximately 10 cents per barrel when charging out evaporation losses.

BENZOL PLANT FOR CANADA

CHATHAM, Ontario, Aug. 27.—The Hamilton By-Product Coke Ovens, Ltd., of Hamilton, Ontario, has contracted with the Semet-Solvay Engineering Corp. of New York for the construction of a complete plant for the manufacture of motor benzol as a by-product from the manufacture of gas and coke by the present coke oven plant.

NORTH AND WEST TEXAS RATES

AUSTIN, Tex., Aug. 29.—Amendments to the crude oil freight rate schedules of Texas ordered Thursday by the State Railroad Commission will establish new rates in north and west Texas points on application of the railroads. The new rate on crude oil from Trent to Gainsville will be 17 cents, to Fort Worth from Coahoma the rate will be 14½ cents, 15 cents from Midland and 16 cents from Judkins.

NEW CRACKING UNIT FOR ALBERTA PLANT

CHATHAM, Ontario, Aug. 27.—The cracking plant of the Beaver Refining Co., located at the refinery of the Maple Leaf Refining Co., Coutts, Alberta, is now practically completed. The plant has been in the process of construction for several months. The process is known as the Leamon process.

The Leamon process was developed in United States and is now in operation at the Baltimore, Md., refinery of the Interocean Oil Co. and the Newark, Ohio refinery of the Stellarine Refining Co. It is a vapor phase process and the gasoline obtained from the operation is said to be a superior product due to its relatively antiknock value.

The Maple Leaf Refining Co. which has operated a skimming plant at Coutts for some time will supply the gas oil charging stock for the cracking unit. The crude oil supply for the plants is obtained from the Sunburst Field of Montana, the plant being located just across the Canadian line.

NEW FRY COUNTY PLANT

The Roxana Petroleum Corp. has ordered material for a new natural gasoline plant to be located in Fry County, Texas. The site will be in the Grosvenor extension to the pool. It will have a capacity of 6,000,000 feet daily.

PETROLEUM DIVISION, A. C. S. AT DETROIT

Seventeen papers will be presented at the meeting of the Petroleum Division of the American Chemical Society to be held at the Hotel Statler, Detroit, September 5 to 10. The subject matters of the papers is largely confined to motor fuels and motor lubricants.

All the papers will be presented Thursday and Friday, September 8 and 9. These sessions will be held in the Henry II Room, Hotel Statler. On Wednesday a joint session of the Petroleum Division and the Industrial and Engineering Chemistry Division will be held.

The following papers will be presented on Thursday and Friday:

H. C. Mougey. Sulphur in Gasoline from the Automobile Standpoint.

S. H. Diggs. A Study of the Effects of Sulphur in Gasoline on Wrist-Pin Corrosion in Automobiles.

W. F. Faragher, J. C. Morrell and F. Comay. Thermal Decomposition of Sulphur Derivations of Hydrocarbons.

F. H. Morris and W. G. Whitman. Heat Transfer for Oils and Water in Pipes.

R. E. Schaad and C. E. Boord. Effect of Knock Suppressing and Knock-Inducing Substances on the Combustion of Certain Pure Fuels.

W. F. Faragher, Gustav Egloff and J. C. Morrell. The Antiknock Properties of Cracked and Straightrun Gasoline from Various Crude Oils.

R. Stevenson and J. A. Babor. The Determination of the Volatility of Gasoline. (Lantern.)

J. C. Morrell and Gustav Egloff. Apparatus for Fractional Distillation under Reduced Pressure.

J. B. Hill and H. B. Coats. Relation between Viscosity and Gravity of Petroleum Products. (Lantern.)

F. S. Bacon. An Improved Apparatus for Determining the Flow Points of Lubricating Oils.

J. G. Ford. Evaluation of Transformer Oils. (Lantern.)

A. W. Francis. The Free Energy of Some Hydrocarbons.

A. W. Francis. The Free Energy of Some Alcohols.

F. S. Bacon. Unsaturated and Molecular Weights of Commercial Lubricating Oils. Modification of Francis Method of Determination of Unsaturateds in Oils.

F. J. Mechlin. An Economical Plan for Recovering Valuable Products from "Spent" Doctor and Caustic Solutions.

S. W. Ferris. A Precision Pipet Viscosimeter. (Lantern.)

H. M. Smith. The Study of an Intermediate Base Crude.

AMONG THE TECHNICAL MEN

E. L. Corah, superintendent of the refinery of the Witherspoon Refining Co. at Somerset, Tex., near San Antonio, started in the refining business with the Cornplanter Refining Co. at Warren, Pa., He was 19 years old at that time. The Cornplanter plant is one of the oldest of the eastern refiners. Mr. Corah spent 20 years with this company and when he left the company he was superintendent of the refinery.

E. L. Corah

This 20 years' experience in eastern refinery methods proved to be of great aid to Mr. Corah when he entered the Mid-Continent refining field 10 years ago. His first employment was with the Oklahoma & Kansas Refining Co. at Niotaze, Kans. Later he was with the Empire Refineries, Inc., at Tulsa. When oil was discovered in Arkansas, he operated a refinery at El Dorado, Ark., for the Shippers Petroleum Co.

About 18 months ago he took charge of the Somerset refinery, then owned by the Southern Refining Co. He continued as superintendent of the plant when the plant was purchased by the Witherspoon Refining Co.

Under Mr. Corah's direction several improvements have been made at the Somerset refinery. Special products are now manufactured for which the sales department of the company has found a wide demand.

COMPRESSOR AT PAMPA IS BEING COMPLETED

The Empire Oil & Refining Co. has completed the preliminary construction work on the large compressor at Pampa, Tex., as the first unit in the 20-inch gas line from the Texas Panhandle to Kansas City.

The station will operate three 1,000-horsepower engines. The work on the Mooreland station has also started and in addition to the plant, seven four-room houses and one large boarding house will be built. This plant will include four Cooper engines. Construction work on the Wichita station has been started and most of the work is completed. This plant will embody some features not included in the ordinary gasoline plants because the gas supplied will have already gone through several plants and will contain only about .5 gallon of gasoline per 1,000 feet of gas.

NEW ROXANA PLANTS, OXFORD AND COVINGTON

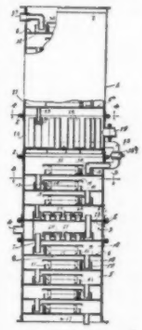
The Roxana Petroleum Corp. has started the construction of a gasoline plant at Oxford, Kans. and has completed plans for the erection of another plant at Covington, Okla. Each of these will make approximately 8,000 gallons daily and will use the absorption method of operation.

The Oxford plant is being built to run the gas being produced in the newly developed field on the townsite and near there. The Covington plant will handle the gas for the gas-lift as the company develops the use of it in the fields there.

Recent Patents

1,637,468. Contacting Means. Halbert Evans Boner, Los Angeles, Calif. Filed April 21, 1926. Serial No. 103,464. Sixteen claims. (Cl. 196—100.)

2. In a fractionating tower, the combination of a receiver for crude oil, a stripper section with screens, means for conducting crude oil from the receiver into the stripper section and for guiding the same to flow across the screens, means for passing a heated vapor or gas up through the screens to vaporize the heavier fractions, a reboiler above the receiver, a fractionating section above the reboiler and having screens, means for conducting the vapors from the stripper section through the oil receiver, through the reboiler and through the screens of the fractionating section, means for guiding condensate of substantially the desired fraction across the screens of the fractionating section and into the reboiler, and means for leading off the vapors from the fractionating section.



REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

GASOLINE AND NAPHTHA

	Aug. 30		Aug. 23		Aug. 16	
OKLAHOMA (Group 3)—						
50-52 450 endpoint (Naphtha)	.06⅛	.06¼	.06¼		.06⅜	.06½
56-58 450 endpoint	.06	.06⅛	.06⅛		.06⅛	.06¼
58-60 450 endpoint	.06		.06⅛	.06¼	.06⅛	.06¼
58-60 437 endpoint (U. S. Motor)	.06¼		.06¼	.06½	.06⅜	.06½
60-62 400 endpoint	.06⅜	.06½	.06⅝		.06⅝	.06¾
64-66 375 endpoint	.06⅝	.06¾	.06¾	.07	.06¾	.07
68-70 360 endpoint	.07	.07¼	.07⅛	.07⅜	.07⅛	.07⅜
64-66 437 endpoint (blend)	.06⅛	.06¼	.06½		.06½	
KANSAS—						
58-60 437 endpoint (U. S. Motor)	.06½		.06½	.06¾	.06½	.06¾
56-58 437 endpoint	.05⅞	.06	.05⅞	.06	.05⅞	.06
58-60 450 endpoint	.05⅞	.06	.05⅞	.06	.05⅞	.06
58-60 437 endpoint (U. S. Motor)	.06	.06⅛	.06⅛	.06¼	.06⅛	.06¼
60-62 400 endpoint	.06¼	.06⅜	.06¼		.06⅜	.06½
64-66 390 endpoint	.06½		.06½		.06½	.06⅝
64-66 375 endpoint	.06⅝		.06⅞	.06¾	.06⅝	.06¾
68-70 360 endpoint	.07		.06¾		.06¾	
64-66 437 endpoint (blend)	.06		.06	.06⅛	.06⅛	
NORTH LOUISIANA—						
56-58 437 endpoint (U. S. Motor)	.06¼	.06½	.06½	.06¾	.06½	.06¾
ARKANSAS—						
58-60 437 endpoint (U. S. Motor)	.06½		.06½	.06⅝	.06½	.06¾
PENNSYLVANIA—						
52-54 Naphtha	.08⅛	.08½	.08	.08⅜	.08¼	.08⅝
54-56 Naphtha	.08½	.08¾	.08½	.08¾	.08½	.08¾
58-60 Gasoline	.08½	.08¾	.08½	.08¾	.08½	.08¾
60 Gasoline	.09¼	.09½	.09	.09¼	.09	.09¼
62 Gasoline	.09⅜	.09⅝	.09¼	.09½	.09¼	.09½
64 Gasoline	.09½	.09¾	.09½	.09¾	.09½	.09¾
CALIFORNIA—						
58-60 437 endpoint (U. S. Motor) domestic	.09	.09½	.09	.09½	.09	.09½
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.06¼		.06¼	.06½	.06⅜	.06½
56-58 450 endpoint	.06¼		.06¼		.06⅜	
58-60 437 endpoint (U. S. Motor)	.06¼	.06⅜	.06¼	.06½	.06½	.06⅝
60-62 400 endpoint	.06½	.06⅝	.06⅜	.06¾	.06¾	.07
64-66 375 endpoint	.06⅝	.06¾	.06⅞	.07⅛	.07	.07¼
68-70 360 endpoint	.07¼	.07½	.07¼	.07½	.07½	
64-66 437 endpoint (blend)	.06½	.06⅝	.06⅜	.06½	.06⅜	.06½

NATURAL GASOLINE

	Aug. 30		Aug. 23		Aug. 16	
OKLAHOMA (Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.06	.06¼	.06	.06¼	.06	.06⅛
Grade AA, 80-87.9, 375 e.p., rec. 90%	.06	.06⅛	.06	.06⅛	.06	.06⅛
Grade B, 76-83.9, 375 e.p., rec. 85%	.05⅜	.05½	.05⅜	.05½	.05⅜	.05½
Grade BB, 84-92, 375 e.p., rec. 85%	.05⅝	.05½	.05⅝		.05⅝	.05½
Grade C, 80-90, 375 e.p., rec. 78%	.05	.05¼	.05	.05¼	.05	.05⅛
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.06	.06⅛	.06	.06⅛	.06	.06⅛
Grade AA, 80-87.9, 375 e.p., rec. 90%	.06		.06		.06	
Grade B, 76-83.9, 375 e.p., rec. 85%	.05⅜	.05½	.05¼		.05¼	
Grade BB, 84-92, 375 e.p., rec. 85%	.05⅜		.05¼		.05¼	
Grade C, 80-90, 375 e.p., rec. 78%	.05¼		.05		.05	
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.06		.06		.06	.06¼
Grade BB, 84-92, 375 e.p., rec. 85%	.05¾		.05¾		.05¾	
Grade C, 80-90, 375 e.p., rec. 78%	.05½	.05¾	.05½		.05½	.05¾
CALIFORNIA—						
75-85, 370, 390 endpoint	.08½	.09	.08½	.09	.08½	.09
CHICAGO DISTRICT (Based on Group)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.06	.06⅛	.06	.06¼	.06	.06⅛
Grade AA, 80-87.9, 375 e.p., rec. 90%	.06		.06		.06	.06⅛
Grade B, 76-83.9, 375 e.p., rec. 85%	.05½		.05⅝		.05½	
Grade BB, 84-92, 375 e.p., rec. 85%	.05⅜	.05½	.05⅝		.05¼	
Grade C, 80-90, 375 e.p., rec. 78%	.05	.05¼	.05⅛	.05¼	.05	

BURNING OIL

	Aug. 30		Aug. 23		Aug. 16	
KANSAS—						
41-43 water white Kerosene	.04¼	.04½	.04¼	.04½	.04¼	.04½
OKLAHOMA (Group 3)—						
41-43 water white Kerosene	.04	.04¼	.04	.04¼	.04	.04¼
42-44 water white Kerosene	.04⅜	.04½	.04⅜	.04½	.04⅜	.04½
NORTH LOUISIANA—						
41-43 prime white Kerosene	.04¼	.04⅜	.04	.04¼	.04	.04¼
NORTH TEXAS—						
41-43 water white Kerosene	.03⅝	.03¾	.03⅝	.03¾	.03¾	
40-42 water white Kerosene	.03½	.03⅝	.03½	.03¾	.03⅝	
ARKANSAS—						
41-43 water white Kerosene	.04	.04¼	.04	.04¼	.04	.04¼
PENNSYLVANIA—						
43 Kerosene prime white	.05⅝	.05⅞	.05½	.05¾	.05½	.05¾
45 Kerosene water white	.05¾	.06	.05¾	.06	.05¾	.06
46 Kerosene water white	.06	.06¼	.06	.06¼	.06	.06¼
Kerosene water white	.06½	.06¾	.06½	.06¾	.06½	.06¾
300 Mineral Seal	.06¾	.07	.07	.07¼	.07	.07¼
CALIFORNIA						
38-40 water white Kero. (high burning test)	.05	.05½	.05	.05½	.05	.05½
Engine distillate, 43-45 445 endpoint	.08	.08½	.08	.08½	.08	.08½
Engine distillate, 42-44 480 endpoint	.07¾	.08	.07¾	.08	.07¾	.08
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white Kerosene	.04	.04¼	.04	.04⅛	.04	.04⅛
42-44 water white Kerosene	.04⅜	.04½	.04¼	.04½	.04¼	.04½

FUEL OILS

	Aug. 30		Aug. 23		Aug. 16	
KANSAS—						
22-26 Fuel Oil	.87½	.95	.85	.90	.85	.90
18-22 Fuel Oil	.82½	.85	.80	.82½	.80	.82½
32-36 Gas Oil	.02⅝		.02⅝		.02⅝	.02¾
38-40 Distillate	.03⅛		.03⅛		.03⅛	.03¼
OKLAHOMA (Group 3)—						
Below 18 Fuel Oil	.77½	.80	.77½	.80	.77½	.80
18-22 Fuel Oil	.80		.80		.80	.82½
22-26 Fuel Oil	.82½		.82½		.82½	.85
24-26 Fuel Oil	.82½	.85	.82½	.85	.82½	.85
26-30 fuel Oil	.85	.87½	.85	.87½	.85	.87½
28-30 Fuel Oil	.90		.90		.90	.95
32-36 Gas Oil (dark)	.02½	.02⅝	.02½	.02⅝	.02½	
32-36 Gas Oil (straw overhead)	.02½	.02¾	.02½	.02⅝	.02½	.02⅝
36-38 Distillate	.03	.03⅛	.03		.03	
38-40 Straw Distillate	.03⅛	.03¼	.03⅛	.03¼	.03⅛	.03¼
NORTH TEXAS—						
24-26 Fuel Oil (sellers' cars)	.80		.80		.80	.82½
32-36 Gas Oil (straw)	.02¼	.02½	.02⅜	.02½	.02½	.02¾
38-40 Straw Distillate	.03		.03		.02⅞	.03
NORTH LOUISIANA—						
18-20 Fuel Oil	1.12½	1.15	1.12½	1.15	1.12½	1.15
32-36 Gas Oil	.03	.03⅛	.03	.03⅛	.03	.03⅛
ARKANSAS—						
36-38 Distillate	.03¼	.03½	.03¼	.03½	.03¼	.03½
32-36 Gas Oil (straw)	.03¼		.03	.03⅛	.03	.03⅛
16-20 Refinery Fuel Oil	1.00	1.05	1.00	1.05	1.00	1.05
GULF COAST (South Texas)—						
Gas Oil	.04		.04		.04	.04¼
Fuel Oil	1.60	1.65	1.60	1.65	1.60	1.65
PENNSYLVANIA—						
30-34 Fuel Oil	.03¾	.04¼	.03¾	.04¼	.03¾	.04½
36-40 Fuel Oil	.04	.04½	.04	.04½	.04	.04½
CALIFORNIA—						
33-36 Distillate	.03¾	.04	.03¾	.04	.03¾	.04
27-32 Distillate	.03¼	.03¾	.03¼	.03¾	.03¼	.03¾
*15-20 Fuel Oil, Bunkers (at tide water)	.85	1.10	.85	1.00	.85	1.00
15-20 Fuel Oil (cargo lots)	.70	.75	.70	.75	.70	.75
27 plus Diesel	1.15	1.19	1.15	1.19	1.15	1.19
CHICAGO DISTRICT (Based on Group 3)—						
24-26 Fuel Oil (sellers' cars) Group 3	.85	.87½	.85	.87½	.87½	.90
22-26 Fuel Oil (sellers' cars) Group 3	.82½	.85	.82½	.85	.85	.87½
18-22 (Group 3)	.80	.82½	.80	.82½	.82½	.85
16-20 Smackover	1.10	1.12½	1.10	1.15	1.10	1.15
32-36 Gas Oil (zero)	.02¾	.02⅝	.02¾	.03	.02⅞	.03
32-36 Gas Oil (industrial)	.02⅝	.02¾	.02½	.02⅝	.02½	.02¾
36-38 Distillate	.03	.03⅛	.03		.03	.03¼
38-40 Straw Distillate	.03¼	.03⅜	.03	.03¼	.03¼	.03⅜

*Bunkers.

LUBRICATING OIL AND WAX

	Aug. 30		Aug. 23		Aug. 16	
OKLAHOMA (Group 3)—						
100 vis., 2 color, 20-25 cold test	.06¼	.06½	.06½	.06¾	.06½	.06¾
100 vis., 3 color, 20-25 cold test	.06	.06¼	.06¼	.06½	.06¼	.06½
150 vis., 3 color, 20-25 cold test	.08¼	.08½	.08½	.08¾	.08½	.08¾
150 vis., 4 color, 20-25 cold test	.08	.08¼	.08¼	.08½	.08¼	.08½
180 vis., 3 color, 23-28 cold test	.09¾	.10	.10	.10¼	.10	.10¼
180 vis., 4 color, 23-28 cold test	.09½	.09¾	.09¾	.10	.09¾	.10
180 vis., 5 color, 23-28 cold test	.09¼	.09½	.09½	.10	.09½	.10
200 vis., 3 color, 23-28 cold test	.10	.10½	.10½	.11	.10½	.11
200 vis., 4 color, 23-28 cold test	.10⅛	.10⅝	.10⅝	.10⅞	.10⅝	.10⅞
200 vis., 5 color, 23-28 cold test	.10¼	.10½	.10½	.10¾	.10½	.10¾
240 vis., 3 color, 25-30 cold test	.13¾	.14	.14	.14¼	.14	.14¼
240 vis., 4 color, 25-30 cold test	.13¼	.13½	.13½	.13¾	.13½	.13¾
240 vis., 5 color, 25-30 cold test	.12¼	.12½	.12½	.13	.12½	.13
280 vis., 3 color, 25-30 cold test	.15½	.16	.15¾	.16¼	.15¾	.16¼
280 vis., 4 color, 25-30 cold test	.15	.15½	.15¼	.15½	.15¼	.15½
280 vis., 5 color, 25-30 cold test	.14	.14½	.14¼	.15	.14¼	.15
Cylinder Stocks:						
600, steam refined, light green	.07	.09	.07	.09	.09	.09
600, steam refined, light green	.05	.06	.05	.06	.05	.06
190-200 vis. @210 Bright Stock	.31	.33	.31	.33	.31	.33
150-160 vis. @ 210 Bright Stock	.26		.26		.26	
Waxes:						
124-126 White Crude Scale Wax	.02⅜	.02⅝	.02⅜	.02½	.02⅜	.02½
PENNSYLVANIA—						
34 Neutral	.07½	.08	.07¼	.07½	.07¼	.07½
34 Sundebloom Neutral	.08¾	.09	.08½	.08¾	.08½	.08¾
36 Miners' Neutral	.07½	.07¾	.06¾	.07	.06¾	.07
150, 3 color	.28	.28½	.27¾	.28	.27¾	.28
180, 3 color	.32¼	.32½	.32¼	.32½	.32¼	.32½
200, 3 color	.34	.34¼	.34	.35¼	.34	.34¼
220, 3 color	.36	.36½	.36	.36½	.36	.36½
600, steam refined	.09	.09¼	.08¾	.09	.08¾	.09
635, steam refined	.09½	.10	.10¼	.10½	.10¼	.10½
650, steam refined	.11	.11½	.12	.12¼	.12	.12¼
600 Pennsylvania flash	.15	.15½	.17½	.18	.17½	.18
630 Pennsylvania flash	.27½	.28	.26½	.27	.26½	.27
*550, E filtered	.17¼	.18	.17¼	.18	.17¼	.18
*600, E filtered	.18¾	.19½	.18¾	.19½	.18¾	.19½
600, E filtered	.16½	.17	.17¾	.18	.17¾	.18
600, D filtered	.25½	.26	.25	.25½	.25	.25½
550, E filtered	.17½	.18	.17½	.18	.17½	.18
550, D filtered	.21½	.22	.21½	.22	.21½	.22
Pennsylvania Bright Stock	.33	.35	.33	.35	.33	.35
†122-124 White Crude Scale Wax	.03	.03¼	.03	.03¼	.03	.03¼
†124-126 White Crude Scale Wax	.03	.03¼	.03	.03¼	.03	.03¼

*At Warren, Pa. †At New York City.

GULF COAST (South Texas)—						
No. 2 color, 100 vis., pale oil	.07	.07½	.07	.07½	.07	.07½
No. 3 color, 200 vis., pale oil	.09	.09½	.09	.09½	.09	.09½
No. 3 color, 300 vis., pale oil	.10	.10½	.10	.10½	.10	.10½
No. 3½ color, 500 vis., pale oil	.11½	.12	.11½	.12	.11½	.12
No. 4 color, 750 vis., pale oil	.14½	.15	.14½	.15	.14½	.15
No. 5 to 6 color, 200 vis, red oil	.07¼	.07¾	.07¼	.07¾	.07¼	.07¾
No. 5 to 6 color, 300 vis., red oil	.09	.09½	.09	.09½	.09	.09½
No. 5 to 6 color, 500 vis., red oil	.10	.10½	.10	.10½	.10	.10½
No. 5 to 6 color, 750 vis., red oil	.13	.13½	.13	.13½	.13	.13½
No. 2 color, 200 vis., pale filtered	.12¾	.14	.12¾	.14	.12¾	.14
No. 2 color, 300 vis., pale filtered	.14	.14½	.14	.14½	.14	.14½

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

No. 2½ color, 500 vis., pale filtered	.15½	.16½	.15½	.16½	.15½	.16½
No. 2½ color, 750 vis, pale filtered	.20	.20½	.20	.20½	.20	.20½
CALIFORNIA—						
130 vis., 2½-3 color	.10½	.11	.10½	.11	.10½	.11
200 vis., 2½-3 color	.11	.11½	.11	.11½	.11	.11½
300 vis., 3 -3½ color	.11½	.12	.11½	.12	.11½	.12
350 vis., 3½-4 color	.12	.13	.12	.13	.12	.13
400 vis., 3½-4 color	.13	.15½	.13	.15½	.13	.15½
Red Neutral:						
200 vis., 4½-5 color	.09½	.10½	.09½	.10½	.09½	.10½
300 vis., 5 -6 color	.10½	.11	.10½	.11	.10½	.11
400 vis., 5 -6 color	.12	.13½	.12	.13	.12	.13
500 vis., 4½-5 color	.13½	.14½	.13½	.14½	.13½	.14½
500 vis., 5 -6½ color	.12½	.13½	.12½	.13½	.12½	.13½
600 vis., 6 plus color	.13½	.14½	.13½	.14½	.13½	.14½

Note—Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	Aug. 30	Aug. 23	Aug. 16
Gasoline, U. S. Motor, 58-60 437	.08¼	.08¼	.08¼
Kerosene, water white, 41-43	.06½	.06½	.06½
*Fuel, Oil bunker "C," 14-16, per bbl.	1.65	1.65	1.65
*Fuel Oil, Diesel, 28-30, per bbl.	2.10	2.10	2.10
Gas Oil, 28 plus	.05½	.05½	.05½
25 pale Paraffin Oil	.12	.12	.12
28 pale Paraffin Oil	.07¼	.07¼	.07¼
285 red Paraffin Oil	.12½	.12½	.12½
250 red Paraffin Oil	.11½	.11½	.11½
225 red Paraffin Oil	.10½	.10½	.10½
200 red Paraffin Oil	.09½	.09½	.09½
Refined Wax:			
120-122 a.m.p., per lb.	.03⅞	.03⅞	.03⅞
125-127 a.m.p., per lb.	.04	.04	.04
130-132 a.m.p., per lb.	.04½	.04½	.04½
135-137 a.m.p., per lb.	.05½	.05½	.05
Petrolatum, in bbls., carload lots, per lb:			
Dark green	.01¾	.01¾	.01¾
Amber	.03¼	.03¼	.03¼
Extra amber	.03¼	.03¼	.03⅝
Cream	.05¾	.05¾	.05⅝
Lily white	.07¼	.07¼	.07
Snow white	.08¼	.08¼	.08

*Lighterage 6.5c a bbl. extra.

NEW YORK (BAYONNE) EXPORT PRICES

	Aug. 30	Aug. 23	Aug. 16
Gasoline, U. S. Motor, 58-60 437, in cases	.2440	.2440	.2440
Kerosene, standard white, in cases	.1615	.1615	.1615
Kerosene, water white, in cases	.1715	.1715	.1715
600 steam refined cylinder stock, in bbls	.17	.17	.17
635 steam refined	.19	.19	.19
650 steam refined	.20	.20	.20
600 Pennsylvania flash	.24	.24	.24
630 Pennsylvania flash	.32	.32	.32
600 Warren E	.26	.26	.26
600 Oil City E	.24½	.24½	.24½
Light 135 Bright Stock	.42	.42	.42
Dark 135 Bright Stock	.40	.40	.40

LOS ANGELES EXPORT PRICES

	Aug. 30		Aug. 23		Aug. 16	
Kerosene, water white	.04⅛	.04⅜	.04⅛	.04⅜	.04⅛	.04⅜
U. S. Motor Gasoline, 53-55 437 e.p.	.06	.06¼	.06	.06½	.06	.06½

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

*Corsicana heavy (March 14, 1927).... $1.00
Other fields .....See gravity table

*Posted by Magnolia Petroleum Co.

TEXAS PANHANDLE

*Carson County .....$ .75
*Hutchinson County ..... .75
*Wheeler County ..... .75
Gray County.....See gravity table

*Humble Oil & Refining Co., August 23. Magnolia Petroleum Co., Gulf Pipe Line Co., and Kay County Gas Co., August 24.

WEST TEXAS

*Iatan (same as North Texas).
Crane-Upton-Crockett.....See gravity table

*Includes Howard County and Westbrook Fields. Kay County Gas Co. pays $1.05 for Howard County crude, effective May 21.

ARKANSAS-NORTH LOUISIANA

Cotton Valley (March 17) $1.00
Bellevue (Feb. 24, 1927) 1.25
Urania (March 16, 1927) 1.00
East El Dorado (March 16) 1.00
Other fields .....See gravity table

Note—Cotton Valley and Bellevue, Standard Oil Co. of Louisiana, Gulf Refining Co. and Magnolia Petroleum Co.; Urania, Louisiana Oil Refining Corp.; East El Dorado, Magnolia Petroleum Co.

GULF COAST

(Goose Creek, Hull, Liberty, West Columbia, Orange, Boling, Sour Lake, Humble, High Island, Pierce Junction and Spindletop).
‡Grade A, (March 14) $1.30
Grade B. .....See gravity table
*Jennings, La. (March 14) 1.05
‡Saratoga, Batson, Dayton (March 14, 1927) 1.20
**Markham (March 14) 1.00

*Gulf Pipe Line Co. ‡Sun Pipe Line Co. ‡Humble Oil & Refining Co. and other major buyers. **The Texas Company.

SOUTH CENTRAL AND SOUTHWESTERN TEXAS

*Luling (May 5) $1.00
†Mirando (March 14) 1.00
Rockdale-Minerva (April 15):
38-38.9 gravity 1.27
39-39.9 gravity 1.29
40 and above 1.31
*Thrall .....
Callihan (May 15) 1.75
Lytton Springs (Lockhart) See gravity table
Somerset .....See gravity table

*Posted by Magnolia Petroleum Co. Thrall prices same as north central Texas less 19½ cents per cwt. freight.
†Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co.
*2 cents differential per degree above 37.9 gr. to 40 and above at $1.31

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.
(Effective March 14)

Rock Creek, Wyo. (March 12) $1.25
Salt Creek .....See gravity table
Big Muddy (March 12) 1.25
Mule Creek (May 1) 1.10
Grass Creek, heavy ..... .90
Grass Creek, light 1.33
Elk Basin (March 12) 1.33
Lance Creek (March 12) 1.33
Poison Spider 1.00
Notches ..... .65
Rex Lake (February 22) 1.10
Osage 1.33
Lost Soldier (contract) ..... .95
Greybull-Torchlight 1.33
Hamilton Dome ..... .85
Cat Creek (Mont.) 1.33
Sunburst (Mont.) 1.35
Artesia (March 12) 1.00
Hogback (N. Mex.) (March 14) 1.38

Note: Salt Creek, Osage, Cat Creek, Greybull and Hogback posted by Midwest Refining Co.

(Continued on Page 128)

CALIFORNIA CRUDE PRICES

*Standard Oil Co.-Union Oil Co. (Effective April 1, 1927)

Gravity—	Fullerton, Seal Beach, Long Beach, Huntington Beach, Richfield, Rosecrans-Dom'guez, Torrance-Inglewood 1	Whittier, La Habra, Montebello 2	Kern River, Newhall-McKittrick, Midway-Sunset, Elk Hills, Belridge, Buena Vista Hills, Coyote 3	Santa Fe Springs 5	Coalinga 6	Wheeler Ridge 7	Santa Maria, Ventura, Orcutt, Salt Lake 8
14°	.85	.85	.75	.85	.75	.75	.85
15°	.85	.85	.75	.85	.75	.75	.85
16°	.85	.85	.75	.85	.75	.75	.85
17°	.85	.85	.75	.85	.75	.75	.85
18°	.85	.85	.75	.85	.75	.75	.85
19°	.85	.85	.75	.85	.75	.75	.85
20°	.85	.85	.77	.85	.76	.76	.85
21°	.86	.85	.79	.86	.77	.77	.85
22°	.87	.85	.81	.87	.78	.78	.85
23°	.88	.85	.83	.88	.79	.79	.85
24°	.89	.85	.85	.89	.80	.80	.85
25°	.90	.86	.87	.90	.81	.81	.86
26°	.92	.87	.89	.91	.87	.83	.87
27°	.94	.88	.91	.92	.88	.85	.88
28°	.96	.89	.93	.93	.89	.87	.89
29°	.98	.90	.96	.94	.91	.89	.91
30°	1.00	.91	.99	.95	.92	.91	.93
31°	1.03	....	1.02	....	.96	.93	.95
32°	1.06	....	1.05	....	.97	.95	.97
33°	1.09	....	1.08	....	.98	.97	.99
34°	1.12	....	1.11	....	1.01	.99	1.01
35°	1.15	....	....	....	1.03	1.01	1.03
36°	1.18	....	....	....	1.06	....	1.06
37°	1.21	....	....	....	1.09	....	1.09
38°	1.24	....	....	....	1.12	....	1.12
39°	1.27	....	....	....	1.15	....	1.15
40°	1.30	....	....	....	....	....	....
41°	1.33	....	....	....	....	....	....
42°	1.36	....	....	....	....	....	....

*Column 1—Long Beach, Seal Beach and Huntington Beach crudes, 14 to 32 degrees, inclusive; Richfield and Fullerton, 14 to 30 degrees; Torrance and Inglewood, 14 to 28 degrees; Domingues, 24 to 42 degrees. Rosecrans crude ranges from 14 to 42 degrees, but only Union Oil Co. posts below 24 degrees.

Column 2—Whittier crude, 14 to 22 degrees; Montebello, 14 to 30 degrees.

Column 3—Kern River, Newhall and McKittrick, 14 to 19 degrees; Midway-Sunset, Buena Vista and Elk Hills, 14 to 38 degrees; Lost Hills and Belridge, 14 to 34 degrees.

Column 8—Salt Lake, 14 to 19 degrees, inclusive; Santa Maria, 14 to 30 degrees; Ventura and Orcutt, 14 to 39 degrees. Posted only by Union Oil Co.

CRUDE OIL GRAVITY PRICE TABLE

Gravity—	Okla., Kans., N. C. Tex., La.-Ark. 1	Smackover, Ark. 2	Stephens, Ark. 3	Gray County (Texas Panhandle) 4	Crane, Upton, Pecos, Crockett Counties (West Texas) 5	Salt Creek, Wyo. 6	Grade B & Light Crude (G. Coast) 7	Somerset, (South Central Texas) 8
Below 24	....	1.00	....	....	....	....	....	....
24 and above	....	1.25	....	....	....	....	....	....
Below 25	....	....	....	....	....	....	1.16	....
25 to 25.9	....	....	....	....	....	....	1.17	....
Below 26	....	....	....	....	.60	....	....	....
26 to 26.9	....	....	....	....	.60	....	1.19	....
27 to 27.9	....	....	....	....	.60	....	1.21	....
Below 28	****	....	1.00	....	....	....	....	....
28 to 28.9	1.12	....	1.02	.80	.60	....	1.23	....
29 to 29.9	1.14	....	1.04	.82	.60	1.14	1.25	....
30 to 30.9	1.16	....	1.06	.84	.60	1.16	1.27	....
31 to 31.9	1.18	....	1.08	.86	.60	1.18	1.29	....
32 to 32.9	1.20	....	1.10	.88	.60	1.20	1.31	1.05
33 to 33.9	1.22	....	....	.90	.60	1.22	1.33	1.07
34 to 34.9	1.24	....	....	.92	.60	1.24	1.35	1.09
35 to 35.9	1.26	....	....	.94	.60	1.26	1.37	1.11
36 to 36.9	1.28	....	....	.96	.60	1.28	....	1.13
37 to 37.9	1.30	....	....	.98	....	1.30	....	1.15
38 to 38.9	1.32	....	....	1.00	....	....	....	1.17
39 to 39.9	1.34	....	....	1.02	....	....	....	....
40 to 40.9	1.36	....	....	1.04	....	....	....	....
41 to 41.9	1.38	....	....	1.06	....	....	....	....
42 to 42.9	1.40	....	....	1.08	....	....	....	....
43 to 43.9	1.42	....	....	1.10	....	....	....	....
44 to 44.9	1.44	....	....	1.12	....	....	....	....
45 to 45.9	1.46	....	....	....	....	....	....	....
46 to 46.9	1.48	....	....	....	....	....	....	....
47 to 47.9	1.50	....	....	....	....	....	....	....
48 to 48.9	1.52	....	....	....	....	....	....	....
49 to 49.9	1.54	....	....	....	....	....	....	....
50 to 50.9	1.56	....	....	....	....	....	....	....
51 to 51.9	1.58	....	....	....	....	....	....	....
52 and above	1.60	....	....	....	....	....	....	....

Column 1—Magnolia Petroleum Co. posted new schedule May 5, making price below 28 gravity $1.05 per barrel, with 2 cents increase per degree higher in gravity, taking 33-33.9 gravity at $1.07 as basis, with a top price of $1.45 for 52 and above.

Oklahoma: Prairie Oil & Gas Co., Sinclair Oil & Gas Co., Gypsy Oil Co., March 12; Carter Oil Co., The Texas Company, March 14.

North Central Texas—(Including Ranger, Mexia, Powell, Richland, Wortham, Lytton Springs (Southwest Texas), Iatan and Panola (Magnolia only), Currie, Nocona, Moran and Corsicana light); Texas, Prairie, Sinclair and Gulf, March 12; The Texas Company, Humble Oil & Refining Co., March 14.

Kansas—Prairie, Sinclair, March 12; Carter, Texas, March 14.

Arkansas and North Louisiana—(Caddo, Bull Bayou, Crichton, DeSoto, Haynesville, Homer and El Dorado only); Standard Oil Co. of Louisiana, March 14; The Texas Company, March 14; Magnolia Petroleum Co., Pine Island, Haynesville and Bull Bayou, El Dorado, Gulf Pipe Line Co., March 14.

Column 2—Standard Oil Co. of Louisiana, The Texas Company, Gulf, Atlantic, March 17, Magnolia Petroleum Co. (March 16) posted price of $1 for below 24 degrees and $1.15 for 24 and above. Louisiana Oil Corp., July 6 and Atlantic Oil Producing Co., July 7.

Column 3—Atlantic Oil Producing Co., March 14.

Column 4—Humble Oil & Refining Co. and Gulf Pipe Line Co., March 14.

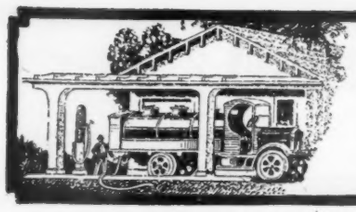
Column 5—Humble Oil & Refining Co., August 23; Kay County Gas Co., Magnolia Petroleum Co., and Gulf Pipe Line Co., August 24.

Column 6—Midwest Refining Co., March 12. All crude over 37 gravity, $1.30 per barrel.

Column 7—Humble Oil & Refining Co. and other major buyers (schedule ends "35 and above"), March 14, with exception of Magnolia Petroleum Co., which steps at 31 degrees gravity. Sun Pipe Line Co. posts 2 cents differential for each degree above 35 gravity and $1.47 for 40 gravity and above.

Column 8—Grayburg Pipe Line Co. and Pioneer Oil & Refining Co., April 7.

****Prices for crude below 28 gravity; Oklahoma, Kansas and Texas, Magnolia Petroleum Co., $1.10, March 12; Arkansas, North Louisiana, March 14. Other companies, 2 cents less for each degree with exception of Humble Oil & Refining Co., which pays $1.13 for crude below 28 degrees gravity.



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns Aug. 30.

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline			Kero.
	Tank wag'n	Service station	Incids tax of	Tank wag'n
Chicago dist.	16.0	18.0	2.0	12.0
Decatur, Ill.	16.2	18.2	2.0	12.1
E. St. Louis	15.1	17.35	2.0	11.2
Joliet	16.4	18.4	2.0	12.3
Peoria	12.0	12.0	2.0	12.1
Quincy	16.2	18.2	2.0	8.9
Davenport, Ia.	17.5	19.5	3.0	12.3
Des Moines	17.0	19.0	3.0	12.3
Keokuk	17.5	19.5	3.0	12.3
Sioux City	17.1	19.1	3.0	11.9
Duluth, Minn.	15.5	17.5	2.0	12.9
Minneapolis	14.0	14.0	2.0	12.9
Mankato	17.1	19.1	2.0	12.7
LaCross, Wis.	17.2	19.2	2.0	13.0
Milwaukee	16.1	18.1	2.0	11.9
Madison	16.3	18.3	2.0	12.1
Detroit, Mich.	16.8	18.8	2.0	12.7
Grand Rapids	16.7	18.7	2.0	13.6
Saginaw	16.9	18.9	2.0	13.6
Evansville, Ind.	17.0	19.0	3.0	13.0
Ft. Wayne	17.4	19.4	3.0	13.4
Indianapolis	17.2	19.2	3.0	13.2
South Bend	17.4	19.4	3.0	13.4
Fargo, N. D.	17.0	19.0	2.0	14.9
Huron, S. D.	19.5	21.5	4.0	13.9
Sioux Falls	15.0	17.0	4.0	13.4
K. C., Mo.	14.9	16.9	3.0	10.6
*Springfield	16.8	18.8	2.0	11.5
*St. Louis	15.6	17.9	2.5	11.3
*St. Joseph	16.5	18.5	3.0	11.2
Wichita, Kans.	14.8	16.8	2.0	10.8
Bartlesville, Ok.	15.8	17.8	3.0	10.8

NAPHTHAS

	Tank wagon	Tank car
Oleum spirits	16.0	10.75
V. M. & P. naphtha	18.0	12.75
Cleaner's naphtha	18.0	12.75
Stanisol	19.0	14.75

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting.

STANOLIND FURNACE OIL

Less than 100 gallons	9.0
100 to 799 gallons	8.0
800 or more gallons	7.5

Tank wagon prices of gasoline subject to discount of 1 cent a gallon on dumps of 50 gallons or more throughout territory except Chicago district where discount applies only to dumps of 100 gallons. Kerosene subject to 1 cent discount on dumps of 50 gallons or more.

Outside the Chicago district, the following quantity discount schedule is in effect on monthly tank wagon deliveries of gasoline: 6,000 gallons or more, 1½ cents; 10,000 gallons or more, 2 cents; 15,000 gallons or more, 3 cents. These discounts include the 1 cent allowed on dumps of 50 gallons or more at one delivery.

Within the Chicago district, the following quantity discount schedule is in effect on tank wagon deliveries of gasoline: 750 to 2,000 gallons, one-half cent; 2,000 to 3,000 gallons, three-fourths cent; 3,000 to 6,000 gallons, 1 cent; 6,000 to 10,000 gallons, 1½ cents; 10,000 to 15,000 gallons, 2 cents; 15,000 gallons or more, 3 cents. These discounts are in addition to the special discount of 1 cent on dumps of 100 gallons or more at one delivery.

If the quantity bought during the year is equal to or exceeds 12 times the agreed monthly quantity, the discount is paid or credited on the entire quantity at the close of the term less the monthly payments made during the year.

*State tax 2 cents; remainder city tax.

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wag'n	Service station	Incids tax of	Tank wag'n
All Ohio points	19.0	21.0	3.0	14.5

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.*

	Gasoline			Kero.
	Tank wag'n	Service station	Incids tax of	Tank wag'n
Dallas, Tex.	14.0	17.0	3.0	11.0
Fort Worth	14.0	16.0	3.0	10.0
Houston	14.0	17.0	3.0	15.0
San Antonio	14.0	16.0	3.0	11.0
El Paso	16.0	18.0	3.0	16.0
Texarkana	15.0	18.0	3.0	12.0
Muskogee, Ok.	15.0	18.0	3.0	9.0
Okla. City	15.0	18.0	3.0	9.0
Tulsa	15.0	18.0	3.0	9.0
Ft. Smith, Ark.	16.0	17.0	5.0	12.0
Little Rock	18.0	21.0	5.0	12.0

*The following is the schedule of discounts on quantity gasoline sales adopted by the Magnolia Petroleum Co. in Oklahoma: Over 750 gallons a month, one-half cent; over 2,000 gallons, three-quarters cent; over 3,000 gallons, 1 cent; over 4,500 gallons, 1¼ cents; over 6,000 gallons, 1½ cents; over 8,000 gallons, 1¾ cents; over 10,000 gallons, 2 cents. If the quantity bought during the year is 12 times the monthly agreed purchases, the discount will be paid or credited on the entire quantity for the year less any monthly purchases.

The schedule on service station deliveries is: Over 200 gallons a month, 1 cent; over 300 gallons a month, 1½ cents; over 400 gallons, 1¾ cents; over 500 gallons a month, 1¾ cents; over 600 gallons, 2 cents. The same rule applies for annual purchases in the tank wagon discounts.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wag'n	Service station	Incids tax of	Tank wag'n
*N. Orleans, La.	15.5	18.5	3.0	14.0
Baton Rouge	14.0	17.0	3.0	12.5
Alexandria	15.0	18.0	3.0	14.0
LaFayette	15.0	18.0	3.0	13.5
Lake Charles	14.5	17.0	3.0	12.5
Shreveport	15.5	18.5	3.0	13.0
Kn'xville, T'nn.	19.5	22.5	3.0	15.0
Memphis	15.0	18.0	3.0	14.0
Chattanooga	19.5	22.5	3.0	15.0
Nashville	18.0	21.0	3.0	15.0
Bristol	19.0	22.0	3.0	14.0
Lit. Rock, Ark.	18.0	21.0	5.0	13.0

*Tax of 3 cents includes city tax of 1 cent.
*Louisiana kerosene prices include 1-cent state tax and 1-cent parish tax.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wag'n	Service station	Incids tax of	Tank wag'n
Atlanta, Ga.	18.0	21.0	4.0	15.0
Augusta	18.0	19.0	4.0	16.0
Macon	19.0	22.0	4.0	16.0
Savannah	16.0	18.0	4.0	14.0
Birm'h'm, Ala.	18.0	21.0	4.0	15.5
Mobile	17.0	20.0	4.0	15.0
Montgomery	19.0	22.0	5.0	16.5
Clarks'le, Miss.	17.0	20.0	4.0	12.5
Jackson	17.0	20.0	4.0	13.5
Natchez	16.5	19.5	4.0	14.0
Gulfport	18.5	21.5	6.0	14.0
Vicksburg	16.5	19.5	4.0	14.0
Jack'ville, Fla.	15.0	18.0	5.0	14.0
Miami	17.0	20.0	5.0	15.5
Pensacola	16.0	19.0	5.0	15.0
Tampa	14.0	17.0	5.0	14.0
Lexington, Ky.	18.0	21.0	5.0	15.5
Covington, Ky.	19.0	22.0	5.0	15.5
Louisville	19.0	22.0	5.0	15.0

In addition to the state tax of 2 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and one-half cent on kerosene. Prices in Georgia include one-half cent inspection fee on gasoline and kerosene; in Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene only. Pensacola tax includes 1 cent city levy. Gulfport tax includes privilege tax of 2 cents in addition to state tax.

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

Atlantic Refining Co.

	Gasoline			Kero.
	Tank wag'n	Service station	Incids tax of	Tank wag'n
Pittsburgh, Pa.	16.0	*22.0	...	14.0
Philadelphia	14.0	17.0	...	14.0
Scranton	16.0	*22.0	...	14.0
Allentown	16.0	*22.0	...	14.0
Altoona	16.0	*22.0	...	14.0
Erie	14.0	*18.0	...	14.0
Dover, Del.	19.0	22.0	3.0	14.0
Wilmington	19.0	22.0	3.0	14.0
Spring'd, Mass.	17.0	17.0	...	15.0
Worchester	17.0	17.0	...	15.0
Boston	17.0	17.0	...	15.0
Providence, R.I.	19.0	19.0	3.0	15.0
Hartford, Conn.	21.0	22.0	3.0	15.0
New Haven	21.0	22.0	3.0	15.0

*Includes tax of 3.0 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the state.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wag'n	Service station	Incids tax of	Tank wag'n
Albany, N. Y.	17.0	19.0	...	15.0
*New York	17.0	19.0	...	15.0
Buffalo	17.0	19.0	...	14.0
Rochester	13.0	16.0	...	14.0
Syracuse	17.0	19.0	...	15.0
Boston, Mass.	17.0	19.0	...	15.0
Augusta, Me.	20.0	26.0	3.0	15.0
M'nch't'r, N.H.	17.0	21.0	2.0	15.0
Burlington, Vt.	19.0	21.9	2.0	15.0

*Price in steel barrels.

PACIFIC COAST DISTRICT

Standard Oil Co. (California)

	Gasoline			Kero.
	Tank wag'n	Service station	Incids tax of	Tank wag'n
San Francisco	17.0	21.0	3.0	15.5
Pueblo	18.0	18.0	3.0	15.5
Los Angeles	16.5	20.5	3.0	15.5
Reno, Nev.	22.0	26.0	4.0	19.0
Portland, Ore.	17.5	21.5	3.0	16.5
Seattle, Wash.	16.5	20.5	2.0	16.5
Tacoma	16.5	20.5	2.0	16.5
Spokane	20.5	24.5	2.0	20.5
Phoenix, Ariz.	22.0	26.0	3.0	20.5

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wag'n	Service station	Incids tax of	Tank wag'n
Atlantic City	18.0	....	2.0	14.0
Newark, N. J.	18.0	20.0	2.0	14.0
Annapolis, Md.	20.0	23.0	4.0	12.0
Paltimore	20.0	23.0	4.0	10.0
Cumberland	20.0	23.0	4.0	14.0
Washington	18.0	21.0	2.0	12.0
Danville, Va.	20.5	....	4.5	14.0
Norfolk	20.5	20.5	4.5	12.0
Petersburg	20.5	23.5	4.5	14.0
Roanoke	20.5	23.5	4.5	14.0
Richmond	20.5	23.5	4.5	14.0
Ch'rlst'n, W.Va.	20.0	23.0	4.0	13.0
Keyser	20.0	....	4.0	14.0
Parkersburg	17.0	20.0	4.0	14.0
Wheeling	20.0	23.0	4.0	14.0
Charlotte, N. C.	20.0	23.0	4.0	14.0
Hickory	20.0	23.0	4.0	14.0
Mt. Airy	20.0	23.0	4.0	14.0
Salisbury	20.0	23.0	4.0	14.0
Charl'stn, S. C.	20.0	23.0	5.0	14.0
Columbia	20.0	20.0	5.0	14.0

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wag'n	Service station	Incids tax of	Tank wag'n
Omaha	14.25	16.25	2.0	12.25
McCook	14.75	14.75	2.0	11.50
Norfolk	16.75	18.75	2.0	12.75
N. Platte	17.75	19.75	2.0	13.50
Scottsbluff	17.25	19.25	2.0	13.00

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wag'n	Service station	Incids tax of	Tank wag'n
Denver, Colo.	18.0	20.0	2.0	12.5
Pueblo	18.0	20.0	2.0	14.5
Grand Junction	21.5	23.5	2.0	18.0
Casper, Wyo.	18.0	20.0	3.0	13.0
Cheyenne	19.0	21.0	3.0	14.5
Butte, Mont.	22.0	22.0	3.0	19.0
Helena	22.5	24.5	3.0	19.0
Salt Lake, Utah	21.0	23.0	3.5	17.0
Boise, Idaho	23.5	25.5	4.0	19.0
Twin Falls	23.5	25.5	4.0	19.0
Albu'que, N. M.	21.0	24.0	5.0	17.0

TANK WAGON CHANGES

August 22—Continental Oil Co. reduced kerosene 2 cents at Denver, Colo., making the new price 12½ cents.

August 27—Standard Oil Co. of Indiana reduced the gasoline station price 2 cents at Peoria, Ill., making both the tank wagon and station prices 12 cents.

CRUDE OIL CHANGES

August 24—Kay County Gas Co., Magnolia Petroleum Co. and the Gulf Pipe Line Co. reduced Carson, Wheeler and Hutchinson County (West Texas) crudes 20 cents per barrel and also established a flat price of 60 cents per barrel for Pecos, Crane, Upton and Crockett County crudes. The established prices in these fields were the same as those set by the Humble Oil & Refining Co. on the previous day.

NORTH TEXAS MARKET SHOWING SOME STRENGTH

WICHITA FALLS, Tex., Aug. 29.—Low gravity gasolines were weaker in the North Texas refined market while the higher gravities held their own due to the export buying last week. Natural gasolines maintained their price levels and kerosenes and fuel oil showed signs of strengthening.

The higher gravity refined gasolines were not heavily stocked in the North Texas territory and an export order last week gave them a strength that is holding over. The lower gravities were off an eighth of a cent with practically no movement in the product. It is reported that several refineries are planning to reduce their runs on the first of the month.

Wichita Falls operators do not feel they will benefit from the crude cuts in West Texas. Amarillo refiners will profit by them because they are running Panhandle crude but none of the Wichita Falls or North Texas refiners are running that crude. Some Fort Worth refiners will profit to some extent by the West Texas crude cut but as a whole the crude cut will have very little effect.

Continued activity in the natural gasoline market has made each product firm. Demand for grades A and AA sent many into the market for the other grades with the resultant strengthening of those grades.

Fuel oil is holding firm at 80 cents and many believe that it will strengthen. A few orders have been reported for September delivery at prices slightly above the spot market price. However, no bargains for future delivery in fuels have been reported and the inquiries on comparatively close margins have been turned down by refiners. In Wichita Falls the market is expected to get strength through railroad fuel buys.

While kerosene prices have not advanced the demand for the product is better and refiners believe it will have a better price shortly. A number of inquiries are being received from those areas where it is used for tractor fuel and its consumption in that direction is expected to increase sharply in the near future. Inquiries for kerosene for export are also helping to give that product strength.

Gas oil was steady during the week and was unchanged over prices prevailing last week. While distillate did not change in price it was weaker.

GOOD WELL IN FORMOSA

An oil well good for 2,000 bbls. a day has been completed at Byoritsu, north of Taiwan, Formosa, according to reports. There has been no commercial production in the island heretofore, but small quantities of oil in pits were discovered many years ago by the Chinese.

CRUDE OIL PRICES

(Continued from Page 127)

ing Co., and the remainder by the Ohio Oil Co. Both companies post Grass Creek light and Elk Basin.

EASTERN STATES

Joseph Seep Purchasing Agency
(Effective April 13)

Penna Grade Oil in New York Transit Line (New York)	$2.65
Bradford District Oil in National Transit Lines (Pennsylvania)	2.65
Penna Grade Oil in National Transit Lines (Pennsylvania)	2.55
Penna Grade Oil in Southwest Pennsylvania Lines (West Virginia)	2.55
Penna Grade Oil in Eureka Pipe Line lines (Pennsylvania)	2.50
Penna Grade Oil in Buckeye Pipe Line lines (Ohio) (August 23)	2.25
Cabell Grade Oil in Eureka Pipe Line lines (West Virginia) March 16	1.40
Corning 35-cent grade oil in Buckeye Pipe Line Co.'s line (March 17)	1.35
Corning 25-cent grade oil in Buckeye Pipe Line Co.'s lines (March 17)	1.45
Somerset Oil in Cumberland Pipe Line lines (Kentucky) March 16	1.50
Ragland Grade Oil in Cumberland Pipe Line lines (Kentucky)	.95
Keister (Pennsylvania)	1.10

MIDDLE WESTERN STATES

Ohio Oil Co.
(Effective March 14)

Lima	$1.71
Wooster	1.57
**Saginaw, Mich., Saginaw Sand (May 27)	2.05
Illinois	1.60
Indiana	1.48
Princeton	1.60
Plymouth	1.32
Waterloo (Nov. 17, 1926)	1.35
*Western Kentucky	1.33
**Saginaw, Mich., Beres Sand (May 27)	1.95
†Cumberland, Barren, Clinton and Monroe Counties, Kentucky (March 16)	1.50
‡Oil in lines of Stoll Oil Refining Co. in Oil City, Ky. (March 16, 1927)	1.50
†Clay County, Tennessee (Nov. 18)	2.35
§Oil Springs (Canada)	2.18
‡Petrolia (Canada)	2.11

*Posted by Ohio Oil Co.
†Posted by Paragon Development Co.
‡Posted by Stoll Oil Refining Co.
§Posted by Imperial Oil Co., Ltd.
**Posted by Sun Oil Co.

MEXICAN CRUDE

Note—Due to the fact that the exportation of Tuxpam light crude oil has become a negligible factor, prices will no longer be published.

*Panuco heavy (f.o.b. Mex. ports)	$1.15

*17.496c tax.

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Oil Securities Heavy During Week

Standard of Indiana Notable Exception
Barnsdall and Pan American to New Lows

With no appreciable change in the fundamental situation in the petroleum industry, the oil stocks were heavy during the past week, Standard of Indiana being the exception. The Indiana stock clung around 74 during the better part of the week.

Barnsdall Oil and Pan-American registered new lows, the former making 20¾ and the latter 45⅛. The reason for the drop in Barnsdall is said to be that additional financing is contemplated, while the sluggishness of Pan-American is directly traced to the report that the Government has called for payment of the money due from the cancelled Elk Hill oil reserve. This payment is due September 1, and amounts to $13,000,000 of which Pan-American must pay $11,000,000 and Pan-American Western must pay $2,000,000.

The Standard offerings displayed greater strength than the independents during the week when a heavy selling was witnessed.

Pan-American Petroleum

Heavy selling of Pan-American Petroleum & Transport stock on the New York Stock Exchange brought the common and common B shares down to new low prices in recent years, below 50. The most substantial reason advanced for the selling was the possibility that the dividend rate of $6 per annum would be reduced In some quarters it was thought the dividend might be passed.

Various causes of lower earnings have been given in discussion centering around the company's position. In responsible financial circles, however, the chief cause of a reduction in the dividend would be the lower oil prices together with the active expansion program now being undertaken by the company. It is highly probable that the management of Pan-American believes surplus earnings can be employed most profitably at this time in wise investments in production, refining, transportation and marketing facilities.

F. H. Wickett, chairman of the board of the Pan-American Petroleum & Transport Co., estimates net earnings for the first six months of 1927, including Pan-America's proportion of Lago profits, will exceed $11,000,000. He states: "Net consolidated profit of Pan-American Petroleum & Transport Co. and subsidiaries (excluding the Lago companies) for the first six months of 1927, after all charges, aggregated $9,023,324. It is estimated that, including Pan American company's proportion of Lago profits the total will exceed $11,000,000 for the six months. It is anticipated that accounts of the Lago companies for the six months will be completed in about two weeks, when financial statements will be published."

Net profit of the Pan American company after interest, depreciation, depletion and taxes in the first six months of 1926 was $15,335,616, also exclusive of Lago earnings. This was equivalent to $5.56 a share on the average amount of stock outstanding during the period. There are approximately 3,426,000 shares of common and Class B common stock presently outstanding. In the first six months of 1926 net profit was $16,539,000 or $6.02 a share on 2,756,321 common and Class B common shares outstanding.

Since the Standard Oil Co. of Indiana became interested in the affairs of Pan American Petroleum & Transport Co., an extensive expansion program has been under way destined to make Pan American a complete and well balanced petroleum organization, active on an equal scale in every important branch of the petroleum industry.

Prior to the entrance of Standard of Indiana, Pan American was largely a crude oil producing company, with chief production in Mexico. Now Pan American has built up a large marketing organization in the United States, selling gasoline and other petroleum products direct to the consumer. Future plans for expansion include enlargement of refining capacity, especially in the United States.

The decline in the company's Mexican production has been partly offset by the company's acquisition of the Lago Oil & Transport Co., one of the largest crude oil producing companies in Venezuela.

Pan American has one of the largest fleet of oil tankers flying the American flag. The company has now achieved a most efficient and well balanced basis of organization, and can be said to be in the strongest position in its history in many respects. If a cut is made in the dividend rate, or the dividend passed, at the coming meeting in September, it will be for the purpose of conserving cash resources to more firmly establish its position in the trade.

Barnsdall Corporation

The net operating earnings of Barnsdall corporation for July were $1,018,167, before depletion and depreciation, but after interest and Federal taxes. After allowing depreciation and depletion of $445,281, net earnings after all charges for July were $572,886. This compares with $533,289 after all charges for July, 1926.

On September 1, Barnsdall will have in storage 2,166,000 bbls. of Seminole crude oil.

The consolidated statement of the Barnsdall corporation and subsidiaries as of June 30, 1927, shows total assets of $74,231,958, against $71,190,773 on December 31, 1926, and surplus of $13,586,550 compared with $13,349,048.

The consolidated balance sheet as of June 30, 1927, compares as follows:

	30, 1927 June	31, 1926 Dec.
Assets		
*Oil, gas and misc. properties	$64,461,895	$61,085,183
Investments and advances	982,795	817,817
Sinking funds	25,655	77,500
Treasury stock	274,375	274,375
Cash	1,526,842	3,662,902
Accounts and bills receivable	1,787,032	1,833,970
Inventories	4,882,238	3,198,150
Deferred charges	291,126	240,876
Total	$74,231,958	$71,190,773
Liabilities		
Class A stock	†$25,000,000	$25,000,000
Class B stock	*3,841,400	3,715,900
Subsidiary stock	947,249	947,249
Funded debt	25,540,825	25,913,749
Proceeds sale of oil		68,197
Bills payable	3,000,000	
Accounts payable	861,607	881,649
Accrued interest, taxes, etc.	740,144	746,151
Dividends payable	714,183	568,830
Surplus	13,586,550	13,349,048
Total	$74,231,958	$71,190,773

*After depreciation and depletion. †Par $25.

W. G. Skelly Optimistic

William G. Skelly, president of the Skelly Oil Co., commenting on the Seminole oil situation, declared that the outlook for keeping production close to the level of consumption was better today than at any time in his 25 years' experience in the oil industry. He said the oil business was in a sound condition, and return to normalcy in crude oil prices was not far distant, adding the belief that the industry had seen the worst of the depression, and the lesson taught by overproduction would be of lasting benefit.

NEW YORK STOCK EXCHANGE—LIST OF ACTIVE STOCKS

Stocks—	Par	Clos. quot. Aug.29	Clos. quot. Aug.22	1927 High	1927 Low	1926 High	1926 Low	1925 High	1925 Low
Amerada Corp.	..	30	30¼	37⅝	27⅛	32⅝	24⅝	...	...
Atlantic Refining, com.	100	118½	124	128½	107	128⅝	97	117½	95½
Barnsdall "A"	25	21¼	23⅞	35½	20⅜	32½	23½	33½	18⅜
California Petroleum, com.	25	21¼	22½	32⅜	21½	33⅛	30⅞	34⅜	23⅜
Houston Oil	100	130½	131⅞	173¼	60¼	75	50¼	85	59
Independent Oil & Gas	..	20½	*21⅝	32⅜	17⅝	34	20¼	41⅜	13⅛
Louisiana Oil	10	11	11⅛	18½	11⅛	19⅝	12	23⅜	13⅜
Maracaibo	..	*15	16	22⅜	15	27⅜	18⅜	35½	20⅜
Marland	..	35½	37⅜	58⅛	31	63⅝	49¼	60⅛	32⅝
Mid-Continent Petroleum	..	30¼	32½	39⅜	29	41	25⅜	38	25⅝
National Supply	50	84⅛	85	95⅜	76	84⅜	55⅛	71	54⅜
Oil Well Supply	25	*35½	34½	44⅜	31¼	36	30	38	33⅜
Pan American, B	50	46¼	54⅛	66⅜	45¼	72⅜	56⅛	83⅜	59½
Pan American, Western B	..	20⅜	*22	37⅜	39	46	34	94⅜	37¼
Phillips Petroleum	..	42½	45	60¼	48¼	54⅞	42¼	47½	36⅛
Producers & Refiners	50	22⅝	24⅝	33⅞	16⅜	26	11	32⅝	12½
Pure Oil, com.	..	25⅞	27	33½	26	31	25⅜	33⅜	25½
Royal Dutch, N. Y., sh.	13.40	45½	46⅛	54⅜	48⅛	57⅜	49⅜	57⅜	48¼
Shell Transport	10	*42½	*43⅛	49	43⅜	48⅞	42	49	39⅜
Shell Un on, com.	..	26½	27⅛	31⅝	25⅜	30⅞	24	28⅜	21⅝
Simms Petroleum	10	*15	16¼	22⅜	14½	25⅝	16½	28½	18⅜
Sinclair Consolidated	..	16¼	17⅛	22⅝	16½	24⅞	16⅜	24⅞	17
Skelly Oil	25	26	28	37⅝	24¼	37⅛	27	32½	21⅜
Standard of California	25	52⅜	54⅜	63⅜	50⅜	62⅛	54	67¼	52½
Standard of New Jersey, com.	25	38¼	39	41⅝	35⅛	46⅜	37½	47½	38⅝
Standard of New York	25	31⅛	31⅛	34⅛	29⅞	47¼	80⅝	48⅜	40
Sun Oil Co.	..	*32	*32	34⅞	30	41⅝	30¼	45⅞	38½
The Texas Company	25	49⅛	49¼	58	45	58	40	55	43⅜
Texas Pacific Coal & Oil	10	13⅜	14⅛	18⅜	12	19⅛	12⅛	23⅜	11
Tide Water Associated Oil	..	16⅜	17⅛	23½	15½	21	17	..	..
Transcontinental	..	8¼	8⅞	8⅝	3⅜	5⅛	3	5⅝	3⅛
Union Oil of California	25	42⅜	43⅜	56½	39⅝	53⅜	37¼	43⅝	33⅛
Union Tank, com.	100	*110	110½	115	95	120⅜	84¼	134	118
White Eagle Oil & Refining	..	*22½	*23	27½	22	29⅜	25⅛	21⅜	25⅝
Standard Oils									
Anglo-American Oil	£1	18½	18¾	21⅝	18¾	19¾	16½	26¾	17½
Borne Scrymser	25	*62	63¾	69	49½	75	65	‡240	205
Buckeye Pipe Line	50	*56	*55	58	45	59½	42	72	63⅛
Chesebrough Manufacturing Co.	25	*108½	*109	107	76⅛	81⅛	63	74	98¼
Continental	10	18	18⅛	22⅝	16⅝	25⅞	19¼	21⅛	21⅞
Cumberland Pipe Line	100	*88½	*90	‡137	90¼	137	102	156	128
Eureka Pipe Line	100	56½	*53	56¼	47	53¾	43	96	61¼
Galena Signal, com.	100	*7⅝	*8	12¼	7⅜	32½	7⅜	68½	23½
Humble Oil & Refining Co.	25	61¼	61⅝	62⅝	54	99⅝	59	99	42½
Illinois Pipe Line	100	161	164	164⅜	123⅜	144	131	154½	124
Imperial Oil	..	48⅞	49¼	47	37⅜	39⅜	32½	39¼	27¼
Indiana Pipe Line	50	*70¼	*69	72½	61	68	52¾	84	87½
International Petroleum Co.	10	30¼	31½	34⅞	28½	35¼	28⅜	25⅜	22⅝
National Transit Co.	12.50	*15½	15⅝	17½	13⅝	30⅝	27¼	25½	16½
New York Transit	100	*34	*34	36	31¼	61½	27½	70	50
Northern Pipe Line	100	*84½	85	88	70	80½	64	88	67½
Ohio Oil Co.	25	*61⅜	*69	64¼	52	67⅜	55⅜	75¼	60
Penn-Mex Fuel	25	*23	24⅝	31	12	24½	15	44	19
Prairie Oil & Gas	25	51⅝	53½	56½	45⅝	60¼	48	65½	45⅜
Prairie Pipe Line	100	181⅜	182¼	185	132	137½	122½	129⅜	105
Solar Refining Co.	100	*181	*182	‡201½	178	212	184½	159	200
South Penn Oil	25	*36⅜	*37	36	31½	50	35	‡197	139
Southwest Pa. Line	100	*73	*71	77	55½	56	47½	84	50
Southern Pipe Line	50	20	*18	‡27¼	24	27	24	‡103	63
Standard of Indiana	25	74⅝	72½	74¼	64¼	70½	60½	70⅜	69¼
Standard of Kansas	25	17	17	20⅞	15⅝	36⅝	16½	46	30¼
Standard of Kentucky	25	122	122½	122¼	111⅝	134⅜	108	137	114⅝
Standard of Nebraska	25	*44	46½	49½	45	51¼	42	‡270	231
Standard of Ohio, com.	100	79	84⅜	‡354	294	362	192½	369	338
Swan & Finch, com.	25	17½	15½	17	15	21	18	27	12
Vacuum Oil	25	129¼	129	134	95⅜	109⅜	94½	109½	80½
Miscellaneous									
Gulf Oil Corp of Pa.	25	90½	92	96⅛	86¼	95	82⅛	98¼	63½

*Bid, no sales. ‡Old stock. †New stock.

Quotations furnished by W. J. Wollman & Co.

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange was as follows:

Aug. 29	60.41	July 25	60.55	June 20	60.46
Aug. 22	61.58	July 18	60.36	June 13	59.91
Aug. 15	61.05	July 11	59.36	June 6	59.27
Aug. 8	61.33	July 2	58.99	May 28	58.68
Aug. 1	60.38	June 27	58.99	May 23	57.89

KEROSENE STRONGER IN SHREVEPORT MARKET

SHREVEPORT, La., Aug. 29.—Purchase of slightly less than 1,000,000 gallons of kerosene from north Louisiana refiners in the past 10 days by the Pan American Petroleum Co. brought that product back into play in the Arkansas-North Louisiana district the past week The purchase, which in round numbers amounted to 105 cars, was made at 4⅛ cents north Louisiana and strengthened a product which has been virtually inactive for several months with kerosene practically cleaned up here and with inquiries still coming in. This product was strong at 4¼ to 4⅜ cents Monday.

Other products reflected little change other than additional weakening of motor fuels, U. S. Motor gasoline being moved at 6¼ to 6½ cents from north Louisiana to local and differential territory. Arkansas gasoline was a trifle stronger with very little moving under 6½ cents. Most of the latter state's shipments were intrastate. Some gasoline still is moving northward in competition with Group 3, but not in sufficient quantities to establish a market. There is an increasing demand from southeastern states. Gas oil was unchanged bringing 3 to 3⅛ cents in north Louisiana and around 3¼ cents from Arkansas refiners. There is very little spot demand for fuel but prices are fairly steady. Natural gasolines continue steady in price with grade AA still being quoted at 6 cents f.o.b. Monroe.

PENNSYLVANIA MARKETS

OIL CITY, Pa., Aug. 27.—The gasoline situation in the Pennsylvania refinery district is about the same as it was a week ago. There has been a good movement but the price structure is no better. The kerosene movement is much better. The fall harvesting is now under way and the consumption of this product for this purpose will be large for five or six weeks. The price is a little firmer. Fuel oil is a little stronger than it has been and the demand is better. Cylinder stocks are improved with improved price and demand. The demand for neutrals was heavy during the week and prices were unchanged. Wax is stronger.

ONTARIO TAX

CHATHAM, Ontario, Aug. 27.—G. Howard Ferguson, premier of Ontario, has definitely announced that at the next session of the Ontario Legislature, legislation will be brought down providing for an increased gasoline tax and a reduction in the cost of motor license markers. The new tax will, it is understood, be 5 cents per imperial gallon, an increase of 2 cents over the present rate.

LITTLE ACTIVITY SHOWN IN CHICAGO MARKET

(Continued from Page 123)

them claim that their 41-43 kerosene averages better than 42 gravity and has a low flash, so why pay more and get no better is their reply to those who ask for the 42-44. This can be bought at 4⅜ cents, but the 4½-cent price is more usually asked.

Distillates Dull

Distillates are expected to begin to move from refiners' storage to the dealers' tanks with September and his may help the situation which has been distinctly dull as to any new spot business, the daily sales still being confined to a few scattering cars. Prices are unchanged. With the approach of the active demand refiners are somewhat encouraged to ask for better prices, but buyers are still offering low prices for quantities to be taken in during the next 30 days. Contracts of various sorts have been made for the coming season and they range from a contract for the entire requirements of the distributor to one that practically amounts to an option to buy at the market within a range. In some of them there is a maximum price, but no minimum. The vast majority of the contracts made are of this kind and some refiners are today declining to name a price, but will sell only at the market as determined by them in vairous ways usually an averaging of certain published reports of the price. It is useless guessing as to the extent of the consumption, but the public seems to be really interested. Their inquiries now relate more to the type or make of oil burner that is most desirable or most efficient rather than to a more general inquiry as to the desirability of substituting oil for coal for domestic fuel.

Gas Oil Firmer

Gas oil is more firmly held than it was at the beginning of last week. Then it was possible to purchase quite freely at 2⅝ cents for a good, straight run, gas oil that would fill the U. G. I. specifications and be generally available to industrial users though not having the essentials for a domestic furnace oil. This cannot be done today. The best price obtainable from refiners for this grade of gas oil is 2½ cents, according to local buyers. Any purchases made at a lower price are exceptional and for some special reason from some plant. There is a little better demand. The weather has been too cool for August and more gas is being burned and some artificial heating plants have been operated nights and mornings. It feels distinctly fallish. Gas companies are buying to some extent, not rushing their orders, but buying as their needs make it essential. Industrial users are occasionally filling their tanks or buying more than they actually need for the job on hand. Soon there will begin a movement of gas oil to the distributors of domestic burner oils and they require a low flash and a low cold test and the query with most of the oil men is where is it going to come from unless refiners make a special effort to run a supply. Some of the larger refiners with extensive distribution have operated their cracking plants and have accumulated stocks of the domestic burner oil grade, but they are also distributors and they state in some instances they have no more on hand than they will need for their own stations. Gas oil, owing to the limited production and the widespread nature of the demand, is regarded as more likely to advance in price than any other grade of fuel oils.

Fuel Oil Stationary

Fuel oil is as well described by the term "stationary" as any. There is really no change in governing conditions. Prices were just about steady in this market all last week. Occasionally some seller would name a lower price than the average market. One sale was reported of 200 cars of low gravity oil over September and October at 85 cents. All dealers feel there must be a string attached and that is one reason why the details of the transaction are kept so quiet. It has been suggested that some refinery with an extensive construction plan sort of traded in a lot of oil at the time that it placed a large order for some product that it needed, one order hinging on the other. This is a mere market surmise, but otherwise should a buyer order at 85 cents when there are dozen refiners who would have taken the order at 77½ cents and very probably at 75 cents?

Some industries hesitate to engage themselves for contract quantities of fuel oil, but are buying from hand to mouth as they have been, so the demand is generally stationary as are prices. The demand for the higher gravities, especially with a low cold test, is active to an extent right now, the trouble being to buy. The Roxana corporation is credited with having a large quantity of 28-30 low cold test oil available, but it is also credited with having made very heavy contracts or holding for its own distribution. Its 28-30 gravity is a fine oil and has been contracted at a good price. There is very little Smackover crude coming to this market at present. There is a limited demand for it for certain purposes owing chiefly to its low cold test, but as fuel oil, which was the big use of the crude, the low prices for refinery fuel oil have crowded it out of the market. Occasional cars are sold at a price range of $1.12½ to $1.15 and some is brought here on contracts. Some heavy crude from other fields is being sold here as Smackover oil to concerns that can use it.

Lubs Not Active

Lubricating oils are not very active. The Pennsylvania oils are higher, both for bright stocks and cylinder stocks, although the price of the crude has been reduced. Some of the concerns that specialize on high grade lubricating oils and greases state that the present season has been the best in their history. They attribute this to the education that has been given the motorists in the use of better lubricants. But there is a vast amount of cheap lubricating oils being sold to the public. Some of it is so bad that the wonder is that even the veriest layman does not realize from looks alone how poor the oil is. Refiners continue to report they are having a good movement on lubs, some claiming to be well contracted for their winter oils. The industrial demand is just about fair for the season, but will improve.

There has been no general change in the tank wagon scale in this territory. Certain parts of the territory are comparatively free from price cutting, but in others it is a chronic condition. A letter was shown last week that purported to come from an organization of building employers in a nearby state, which stated that the organization had recently started a purchasing department for its members. The first move made had been to secure an agreement with a refiner with distribution in that state to sell to members, coupon books calling for $10.00 worth of gasoline for $8.80 in cash. The letter stated that only members could purchase these coupon books, but that a member could buy for his employes. No mention is made of any names given in the letter for the reason that the whole thing looks very "fishy." It is being investigated. The point is that this organization, if there is such an organization, has started its department of purchases by what amounts to an attack on the profits of the legitimate dealer in motor fuel. So many seem to begin that way. Is it largely because gasoline is being used by so many people, it being estimated recently that there was an auto in that state for each 4.3 persons or practically a car for each family? There are an increasing number of reports and rumors in the trade of important changes in the marketing plans of some of the largest concerns, but it is most improbable that any move will be made of this sort until after the Labor Day holiday at least. Some years the gasoline consumption on that day has been very heavy, but no holiday this year has seemed to have any material effect on the market for gasoline. There has been little preparation in the way of additional supplies ordered at least to the present. Otherwise the gallonage is good, somewhat larger than last year as a whole. As a very distinguished oil man said early in the year, there will be no trouble to sell the stocks of gasoline, but we are not so sure regarding prices.

ROCKY MOUNTAIN AREA

(Continued from Page 55)

2,500 bbls. of production in the upper horizons to test lower formations. Same company's No. 1 on the Carica Dome, Section 9-17-7, McKinley County, is drilling at 380 feet.

Utah Drilling

Utah Southern Oil Co.'s No. 1 Nobel, Section 28-40-18, on the Cedar Mesa Dome in San Juan County, southeastern Utah, is bottomed in white sand at 3,440 feet. The drill has cut more than 100 feet of sand in this horizon, the top part of which was dry, but which is showing a little water in the lower section. The results are somewhat discouraging, though it is believed there still remains a chance in lower horizons. The sand is supposed to be in the lower Pennsylvanian, but this is not certain. Drilling is continuing with the intentions of going on down to test the Mississippian if it is in place and can be reached with the drill. It is supposed to be about 300 to 400 feet below the present depth. The Utah Southern is drilling this well for its joint account with the Utah Oil Defining Co. and the General Petroleum Corp.

The Union Oil Co. of California's No. 1 State, Section 16-30-25, Lisbon structure, San Juan County, failed to develop anything worth while at 2,643 feet, where it encountered gas that blew the tools up the hole 125 feet where they lodged and bridged the hole. After cleaning out to bottom, a core was taken and it was found that below the thin stratum there was more salt. This is the second pocket of gas encountered within the past few weeks, the other being at 2,565 feet in which there was 250 feet of oil in the hole from a sandy lime stratum 4 feet thick. The oil was bailed down and the drill went back into salt. Drilling is again in progress with the hole bottomed at 2,715 feet. If this test does not find something worth while within the next 1,500 feet, it is probable that drilling will stop and that a flank well will be put down to test the salt dome theory.

Proclamation Land Test

Operations have been resumed at the Southwest Oil Co.'s No. 1 well on Section 22-43-22, on the Boundary Butte Dome in San Juan County, after being idle for more than two years. This is the well that caused litigation between the United States Government and holders of permits in an effort of the former to cancel the permits issued under Secretary Fall's regime, followed by legislation by the last Congress which settled the dispute and granted relief to the permit holders. The structure is on an Indian reservation created by presidential proclamation. Secretary Fall ruled that proclamation lands came under the provisions of the general leasing act of February 25, 1920. His successor reversed the decision and attempted to cancel the permits which had been issued. In the meantime the Southwest Oil Co., a drilling company putting down the test for Midwest, Continental Oil and other interests, had expended large sums for road construction, opening a coal mine, and commencing a test well. Following the adoption of the relief legislation, the litigation was dismissed and the way cleared for the resumption of drilling as soon as the owners of permits reached an understanding among themselves. The work now under way consists of repairing the rig, water lines and other equipment and moving in supplies. The tools will go back into the hole within the next few weeks, according to present plans. The well was showing for a 30-bbl. producer in the Shinarump conglomerate at 1,568 feet when operations were suspended. This horizon was about 8 feet thick. Outcrops some distance away indicate that the next interval consists of about 150 feet of shale and then comes the Du-Chelle sandstone estimated to be between 200 and 400 feet thick. The Goodrich sand in the Pennsylvanian is expected at 3,500 to 4,000 feet and the lower sand, the Mendenhall, is logged a short distance below that horizon. Altogether, there are five or six sands to be tested.

Diamond Oil Co.'s test near Thistle, Section 3-9-4, is changing over from cable tools to a diamond drill. The hole is bottomed at 2,200 feet and too small to go much deeper with cable tools, but is thought that with the change a test can be made. The company announces the acquisition of additional acreage in the vicinity of the test, bringing its total holdings up to 20,000 acres.

FIELD RUNS FOR THE WEEK

Salt Creek	33,000
Teapot	740
Big Muddy	3,050
Dutton Creek	40
Grass Creek	2,640
Elk Basin	1,010
Greybull	15
Rock Creek	2,750
Notches	310
Rex Lake	160
Lance Creek	460
La Barge	450
Poison Spider	1,020
Osage	290
Hamilton Dome	1,620
Mule Creek	660
Lander	390
Byron	70
Lost Soldier	2,770
Simpson Ridge	110
Ferris	100
Cat Creek	2,110
Lake Basin	240
Kevin Sunburst	12,000
Iles Dome	490
Walden	46
Florence	1,046
Moffat	1,665
Tow Creek	920
Fort Collins	2,875
Boulder	25
Rangely	100
Hogback	360
Rattlesnake	315
Table Mesa	...
Artesia	1,450
Total	75,297

TO ASK CONGRESS FOR OIL LEGISLATION

(Continued from Page 31)

with proposals to effect some control of the price of gasoline, but no one thinks of seeking to reduce the cost of producing crude oil or of encouraging the storage of unneeded oil in the original package—that is, underground—at no extra cost, rather than in huge steel tanks that cost 50 cents a barrel. My feeling is that it is more the part of constructive statesmanship if we seek to lower prices by making economic conditions favorable to lowering costs.

Must Win Public Confidence

There may be too many petty laws, but there is too little fundamental law that defines the larger relation between Government and business, bringing the two into vital harmony. It is the process of education that both the public and the oil industry so much need at this stage to which the Federal Oil Conservation Board has devoted much of its energies, and the progress made encourages my faith that Government and all industry can work together for the common weal. More authority is needed for governmental activities in aid of business, but the oil industry, at least, now seems to appreciate that its first step is to win public confidence by taking the public into its confidence.

The approach toward effecting ways and means for the accomplishment of conservation seems to require complete publicity of an industry's activities as the price of greater freedom of action. What is needed is not Government interfering with business nor business meddling with Government, but Government helping industry for its own and the public good. To that end, I ask that you contribute to national conservation the legal advice it sorely needs.

PENNSYLVANIA DEEP TESTS

OIL CITY, Pa., Aug. 27.—Progress is being made steadily at the three deep tests now being drilled in this section of the state. The United Natural Gas Co.'s No. 3737 at Kane is to be shut down for temperature tests. It has reached 6,335 feet and is now in the Niagara lime. The Fidelity Petroleum Corp. is drilling its test at Tidioute at 5,640 feet. It had a showing of gas from 5,616 to 5,620 feet, which was small and estimated at from 10,000 to 15,000 cubic feet. The Dermer well in Jefferson County is at 7,200 feet but from a geological standpoint is not as deep as the other two.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 38)

George A. Henshaw and Geyer Oil Co.'s No. 1 Noelke-Murphy, 660 ft. S and E of NW cor. Sec. 10, Blk. PP, T. C. Ry. Sur., A-5,148 ..... Drilling 200 ft.
J. K. Hughes' No. 2-B Powell, Sec. 63, E. L. & R. R. Sur., elev. 2,783 ft. ..... Shut down 2,600 ft.
Magnolia Petroleum Co.'s No. 2 Shannon ..... Show oil 2,385-90 and 2,992 ft.; total depth 4,100 ft.; fishing 20 joints 8-in. casing.
Newman Oil Co.'s No. 1 B. C. Clark ..... Location.
William Shaffer et al's No. 1 University, C SE SE Sec. 9, Blk. 47, University Sur., elev. 2,344 ft. ..... Total depth 2,344 ft.; plugged back to 2,208 ft.; shot 10 qts. 2,170-95 ft.; shut down.
William Schaffer et al's No. 2 University, 1,350 ft. N and 2,610 ft. E of SW cor. Sec. 9, Blk. 47, University Land ..... Top salt 1,060 ft.; first oil show 2,190-96 ft.; second 2,225-29 ft.; shut down; about 30 ft.; oil in hole.
W. W. Donnelly & Young's No. 1 Massey, Sec. 29, Blk. U-Y ..... Drilling 100 ft.
W. W. Donnelly, Young, Logan & Hult's No. 1 Pierce, C SW Sec. 150, Blk. O, G. H. & S. A. Sur., elev. 2,105 ft. ..... Rainbow show 454 and 540 ft.; fishing for bailer 1,375 ft.
Kirby Oil Co. and Taylor-Link Oil Co.'s No. 1 Powell ..... Top salt 1,050 ft.; drilling broken sandy red rock 2,370 ft.
P. H. Williams' No. 2 L. P. Powell ..... Top salt 1,355 ft.; drilling salt water sand 2,275 ft.
McMammon Oil Co.'s No. 1 Blakeney ..... Rig; drilling water well.
Young & Donnelly's No. 1 J. M. Shannon, C Sec. 11, Blk 9, D. & S. E. Sur. ..... Drilling 100 ft.

CULBERSON COUNTY

James H. Gardner et al's No. 1 Radford, C SE Sec. 29, Blk. 62, Public School Land Sur. ..... Drilling 585 ft.
Scott & Dittman's No. 1 Miller, SW cor. NW NE Sec. 1, School Blk. 97 ..... Spudded and shut down.

DAWSON COUNTY

R. R. Penn's No. 1 Wright, elev. 2,842 ft. ..... Top salt 1,750 ft.; set 8-in. 2,449 ft.; drilling 2,450 ft.

ECTOR COUNTY

J. S. Cosden, Inc., et al's No. 2 Connell-A, NW cor. NE Sec. 13, B-16, School Land, elev. 2,844 ft. ..... Top salt 870 ft.; top lime 3,177 ft.; first show 3,420-22 ft.; pay 3,471-3,515 ft.; 160 ft. oil in hole; shot 180 qts.; estimated 1,000,000 ft. gas; swabbed and flowed 82 bbls. June 30; cleaned out and shut down for orders; 800 ft. oil in hole.
J. S. Cosden et al's No. 3 G. W. Connell-A, SE cor. NE Sec. 13, Blk. B-16 ..... Top salt 863 ft.; show oil 3,375 ft. and 3,499 ft.; top lime 3,195 ft.; shot 208 qts. 3,465-3,545 ft.; 300 ft. oil in hole; shut down.

FISHER COUNTY

Hucony Gas Co. No. 1 Langford ..... Rigging up to drill deeper from 3,258 ft.
Ideal Oil Co.'s No. 1 Jameson, C SE Sec. 111, Blk. 1, H. & T. C. Sur. ..... Hole full salt water 2,345-2,520 ft.; shut down for orders 3,304 ft.
Marland Oil Co. and Texon's No. 1 McCall, Sec. 108, Blk. 3, H. & T. C. Sur. ..... Rig.
Miley Oil Corp. and Marland Oil Co.'s No. 1 W. W. Ammons, Sec. 198, Blk. 3, H. & T. C. Sur. ..... Underreaming 6-in. to 3,235 ft.
R. W. Raney's No. 2 Maberry, Sec. 56, Blk. 1, T. & P. Sur. ..... Shut down for orders 2,725 ft.
Sinclair Oil & Gas Co.'s (was Bourdon Royalty Co.'s) No. 1 J. A. Danise, Sec. 6, Blk. K, T. & P. Sur. ..... Set 8-in. 2,572 ft.; shut down 2,577 ft. for repairs.
The Texas Company's No. 1 D. S. Stevens, C SW SE SE Sec. 79, Blk. 1, H. & T. C. Sur. ..... 8-in. froze 2,302 ft.; fishing.

FOARD COUNTY

C. H. Clark et al's No. 1 Atkins, SW cor. Sec. 89, Blk. 44, H. & T. C. Sur. ..... Rig; moving in tools.
Fain-McGaha Oil Corp.'s No. 1 Mathews ..... Made 50 bbls. 1,484-94 ft.; 4,000,000 ft. gas at 1,668-73 and 1,676-81 ft.; more gas 1,847-51 ft. and 1,863-64 ft.; total depth 1,875 ft.; reaming.
Humble O. & R. and Navarro Oil Co.'s No. 1 L. McAdams, C S ½ Sec. 27, Blk. L, S. P. Sur. ..... Hole full water 2,560 ft.; water sand 3,460-70 ft.; set 6-in. 3,488 ft.; total depth 3,575 ft.; trying to loosen 6-in.
The Texas Company's No. 1 Watkins ..... Drilling 2,088 ft.

GAINES COUNTY

Westheimer & Daube's No. 1 Birge & Forbes Land Co., Sec. 308, Terrell County School Land. ..... Cemented 8-in. 3,900 ft. and shut down for cable tools.

GARZA COUNTY

Emerald Oil Co.'s No. 1 D. Boren, NW cor. NE Sec. 137, Blk. 5, H. & G. N. Sur. ..... Small show oil in gray lime 1,884-1,902 ft.; shut down 2,600 ft.; show oil and hole full water 2,420-60 ft.
Pandem Oil Co.'s No. 1 Justice, SW cor. NW Sec. 2, Blk. 6, H. & G. N. Sur. ..... Show gas and rainbow oil 2,140 ft.; hole full of sulphur water 2,744-65 ft.; to plug.

GLASSCOCK COUNTY

California Co.'s No. 1 W. B. Currie, Sec. 215, Blk. 29 ..... Water sand 1,085-90 ft.; drilling 1,180 ft.
Green et al's No. 1 F. G. Oxsheer, Sec. 6, Blk. 34, T. & P. Sur., elev. 2,540 ft. ..... Top salt 1,245 ft.; drilling 2,929 ft.
Landreth Producing Corp.'s No. 1 A. L. Houston, elev. 2,611 ft. ..... Top salt 1,410 ft.; drilling 3,400 ft.
World Oil Co. and J. S. Meriwether's No. 1 L. S. McDowell, C SW Sec. 43, Blk. 34, Twp. 2-S, T. & P. Sur., elev. 2,553 ft. ..... Top salt 1,180 ft.; drilling 3,015 ft.

HOWARD COUNTY

California Co.'s No. 1 Fisher Brothers, SE SW NW Sec. 36, Blk. 33, T. & P. Sur. T-1-S ..... Drilling 285 ft.
Fred Carey et al's No. 2 G. O. Chalk, SE NW Sec. 124, Blk. 29 ..... Shut down 1,040 ft.; hole full salt water.
W. W. Donnelly et al's No. 1 Martin, SE cor. Sec. 41, Blk. 33, T-2 N. T. & P. Sur., elev. 2,552 ft. ..... Drilling 2,385 ft.
Henshaw et al's No. 1 S. T. Eason, Sec. 6, Blk. 32, T. & P. Sur., T-2-S ..... Show oil 1,340-54 ft.; shot 40 qts.; moving in machine.
Marland Oil Co. and Zoch's No. 1 Jones, Sec. 32, Blk. 27, T. & P. Sur., elev. 2,218 ft. ..... Shut down 500 ft.
Marland Oil Co.'s No. 1 A. M. Fisher, Sec. 1, Blk. 33, T. & P. Sur., T-2-S, elev. 2,730 ft. ..... Shut down 1,500 ft.
Marland Oil Co.'s No. 1-A Guitar Trust Est. ..... Rig.
Marland Oil Co.'s No. 1 A. G. Haines, C SE Sec. 20, Blk. 32, T. & P. Sur., T-1-N ..... Run 20-in. to 365 ft.
Peer Oil Corp.'s No. 1 Read, C NW Sec. 39, Blk. 30, T. & P. Sur., T-1-N ..... Rigging.
Texon O. & L. Co. and Marland Oil Co.'s No. 1 Mrs. Connaly ..... Location.
Texon O. & L. Co.'s and Marland Oil Co.'s No. 2 W. R. Settles ..... Drilling 910 ft.
Texon O. & L. Co. and Marland Oil Co.'s No. 1 Mabel O. Quinn ..... To run 10-in. to 1,850 ft.

HUDSPETH COUNTY

Lockhart Brothers' No. 1 Gardner & Moseley, C SE Sec. 5, School Blk. 21 ..... Shut down 235 ft.

IRION COUNTY

Cash Dollar et al's No. 1 G. J. Bird, NE Sec. 16, Blk. 10, S. P. R. R. Sur. ..... Shut down 2,500 ft.

JEFF DAVIS COUNTY

Humble O. & R. Co.'s No. 2 Crecencio Flores, 1,130 ft. N and 850 ft. E of SW cor. Sec. 34, Blk. 58, T. & P. Sur., Twp. 8 ..... Drilling 300 ft.

JONES COUNTY

Cole & Hart's No. 1 Joe Dillard, NW cor. Sec. 2, Blk. 17, T. & P. Sur. ..... Spudded with spudder; moving in machine.
Midwest Exploration Co.'s (was Campbell et al's) No. 1 L. H. Herndon, Sec. 6, M. E. P. & P. Sur., elev. 1,832 ft. ..... Top pay 2,498 ft.; deepening to 2,524 ft.; swabbed 115 bbls.; shut down for orders 3,009 ft.
Garland & Diamond's No. 1 E. D. Glynn, SE cor. Sec. 18, Deaf & Dumb Asylum Lands ..... Seven bailers salt water per hour at 1,465-1,500 ft.; hole full water 1,900-07 ft.; fishing for bit.
Gillette & Hickey's No. 1 M. E. Young, Tevanio Sur. No. 190 ..... Drilling 1,950 ft.
Hutson & Weaver's No. 1-A Smith, Sec. 51, Blk. 18, T. & P. Sur. ..... Shut down for fuel and casing 800 ft.
Kirk & Brewer's No. 1 J. H. Milsap, Justo Rodriguez Sur., League 357 ..... Hole full salt water 2,403-10 ft.; rainbow show oil 2,720 ft.; drilling 2,940 ft.
Marston Oil Co.'s No. 1 E. Howell, NW cor. SE W ½ of N 400 acres, Sec. 20, Blk. 19, T. & P. Sur. ..... Small show oil 2,496 ft.; shut down 2,545 ft.
Marston Oil Co.'s No. 1 J. S. Swan, Robert Spears Sur. No. 280 ..... Hole full salt water 2,390-2,400 ft. and 2,435 ft.; hole full salt water 3,015-20 ft.; shut down 3,503 ft.
W. G. Stough and others' No. 1 J. P. Willis, J. C. Patterson Sur. No. 2 ..... Fishing tools 1,740 ft.
Stebbins Oil Co.'s No. 2 Higgs, SE cor. Sec. 30, W. T. Scott Sur. ..... Location.
Swensondale Oil Co.'s No. 1 Caton, SW NW Sec. 9, Deaf & Dumb Asylum Lands ..... Shut down 2,505 ft.
Tomberlin et al's No. 1 Oscar Clapp, CSL SW Sec. 37, Blk. 16, T. & P. Sur. ..... Fishing for bit 2,270 ft.

KENT COUNTY

Marland Oil Co. and Texon O. & L. Co.'s No. 1 Bilby, Sec. 41, Blk. K, Thompson Sur. ..... Location.

KNOX COUNTY

Deep Rock Oil Co.'s No. 1 Beavers, CSL Sec. 224, Blk. 44, elev. 1,441 ft. ..... Total depth 2,865 ft.; rig rebuilt.
Deep Rock Oil Co.'s No. 1 Big Four, 1,270 ft. S and 2,590 ft. W of NE cor. Sec. 31, Blk. 4 ..... Cleaning out 1,150 ft.
Humble O. & R. Co.'s No. 1 Goode, 1,940 ft. S and 200 ft. W of NE cor. Sec. 7, H. T. & B. Sur. ..... Hole full water 1,710-15 ft., and 2,760-2,800 ft.; drilling 3,176 ft.
The Texas Company's No. 1 J. O. Bowden, Sec. 115, Blk. 45, H. & T. C. Sur. ..... Lime 1,240-45 ft.; estimated 100,000 ft. gas; hole full water 1,835 ft.; pipe stuck at 2,130 ft.
The Texas Company's No 1 Teague ..... Drilling hard lime 2,650 ft.

LOVING COUNTY

Kingwood Oil Co.'s No. 1 T. O. Moore, C NE Sec. 2, Blk. B-25, Public School Land, elev. 3,120 ft. ..... Top salt 1,210 ft.; show gas 1,600-15 ft.; drilling 4,095 ft.; 350 ft. sulphur water in hole from 4,020-25 ft.
Owens & Sloan's No. 1 W. D. Johnson, C SE Sec. 20, Blk. 53, T-2, T. & P. Sur., elev. 2,934 ft. ..... Shut down 1,020 ft.; in litigation.

LYNN COUNTY

The Hart Oil Corp.'s No. 1 C. O. Edwards, NW NW Sec. 5, Blk. 2, L. & S. V. Sur. ..... Shut down 1,400 ft.

MIDLAND COUNTY

Orbit Oil Co.'s No. 1 Moreland, C SE Sec. 17, Blk. 39, T. & P. Sur. T-1-S ..... Shut down 185 ft.

MITCHELL COUNTY

Robert Thraves' No. 1 C. Way, Sec. 91, Blk. 27, T. & P. Sur. T-1-N ..... Total depth 2,508 ft.; repairing rig.
Tex-O-Kan Oil Co. and Robert Thraves' No. 1 W. F. Sanders ..... Cementing 6-in. at 2,673 ft.
B. E. Walter et al's No. 1 J. E. Dollen, NW cor. SW Sec. 11, Blk. 27, T. & P. Sur. ..... Shut down 3,955 ft.; hole full sulphur water.

NOLAN COUNTY

J. H. Winemiller Corp.'s (was Peters et al's) No. 1 Booth, Sec. 90, Blk. 21, T. & P. Sur. ..... Underreaming 6-in. to 2,550 ft.
Herbert Oil Co.'s (was McClesky and others') No. 1 Pepper, SE cor. SW Sec. 29, Blk. 22, T. & P. Sur. ..... Rigged up and shut down.
Zweifel and others' No. 1 Longbotham, C SE Sec. 130, Blk. 1, H. & G. N. Sur. ..... Drilling 2,745 ft.

PECOS COUNTY

Allsman & Bell's No. 2 Pecos River bed ..... Location.
Benedum & Trees' No. 1 J. C. Trees, C NW SE SE Sec. 30, Blk. 7, H. & G. Sur., elev. 2,556 ft. ..... Flowed sulphur water 3,250 ft.; shut down 3,335 ft.
Buell et al's No. 1 Batchelor, C N ½ NE Sec. 89, Blk. OW, G. C. & S. F. Sur., elev. 3,188 ft. ..... Show oil 1,700 ft.; flowed sulphur water 1,775 ft.; fishing 2,740 ft.
Buell & Hagan's No. 1 Jasper, 1 mi. S and W NE cor. Jasper Co. School Land No. 104 ..... Fishing for tools 1,037 ft.
California Co.'s No. 2 I. G. Yates ..... Rig.
California Co.'s No. 1 M. A. Smith ..... Spudding.
M. C. Dibble & Hale's No. 1 Bonebrake, Sec. 115, Blk. 8, I. & G. N. Sur. ..... Shut down 500 ft.
Bob Elmore's No. 1 M. Holmes, Sec. 542, Blk. 1, I. & G. N. Sur., elev. 2,176 ft. ..... Top salt 335 ft.; slight show oil and 2 bailers sulphur water 1,500 ft.; small show gas at 1,515 ft.; drilling anhydrite 1,517 ft.
Garland & Mott's No. 1 El Paso Cattle Loan Co., C NE Sec. 26, Blk. 126, T. & S. L. Sur., elev. 2,562 ft. ..... Shut down 2,550 ft.; 200 ft. of sulphur water at 2,530 ft.
Gulf Production Co.'s No. 1 Smith, NE cor. Sec. 28, Blk. 194 ..... Set 12½-in. 536 ft.; drilling lime 480 ft.
George A. Henshaw, Jr., No. 1 Snyder, Sec. 29, Blk. 144, T. & St. L. Sur. ..... Location.
Humble O. & R. Co.'s No. 1 M. A. Smith, NE cor. Sec. 36, Blk. 194, G. C. & S. F. Sur. ..... Building derrick.
McMan and Marland's No. 2 I. G. Yates ..... New location.
McMan and Marland's No. 3 I. G. Yates ..... New location.
McMan and Marland's No. 4 I. G. Yates ..... New location.
McMan and Marland's No. 4-B I. G. Yates ..... New location.
McMan and Marland's No. 1-D I. G. Yates ..... Clearing location.
Marland Oil Co.'s No. 1 Yates, NE cor. Sec. 60, Blk. 1, I. & G. N. Sur., elev. 2,172 ft. ..... Small show oil and gas 445 ft.; top pay 960 ft.; big increase at 1,017 ft.; flowed 232 bbls. through 3/16-in. choke; total depth 1,024 ft.
Mid-Kansas and Transcontinental Oil Co.'s No. 2 Smith-Taylor ..... Rig.
Mid-Kansas and Transcontinental's No. 3 Yates-A ..... Spudding.
Quinby Oil Co.'s No. 1 Townsite, Sec. 1, Blk. 267, Client Addition Sur. Fort Stockton, elev. 2,980 ft. ..... Shut down 3,440 ft.
Quinby Oil Co.'s No. 2 Bennet, C NW 592, Blk. 105, G. C. & S. F. Sur., elev. 2,560 ft. ..... Shut down 1,457 ft.
Quinby Oil Co.'s No. 1 A. A. Gray, 660 ft. N and 1,320 ft. E. SW cor. Sec. 593, Abst. 3,009 ..... Shut down 700 ft.
Red Bank Oil Co.'s No. 1 McKenzie, C N ½ Sec. 21, Blk. 126, T. & St. L. Sur., elev. 3,256 ft. ..... Show sulphur water 2,641 ft.; hole full water 2,660 ft.; drilling white lime 2,970 ft.
Red Bank Oil Co.'s No. 1 M. A. Smith, NE cor. NW Sec. 24, Blk. 194, G. C. & S. F. Sur., elev. 2,720 ft. ..... Top salt 850 ft.; 100 ft. oil in hole 1,468-72 ft.; top pay 1,581 ft.; cleaning out 1,621 ft.; flowing 360 bbls. daily.

Roxana Petroleum Co.'s No. 1 J. H. Tippett ..... Moving in tools.
W. R. Shankel et al's No. 1 I. G. Yates, CSL SW SE SE Sec. 58, Blk. 1, I. & G. N. Sur., elev. 2,220 ft. ... Top salt 425 ft.; 40 ft. oil 1,313 ft.; sulphur water 1,478-79 ft.; water plugged off; shut down.
Simms Oil Co.'s No. 1 M. A. Smith, SW cor. Sec. 103, Blk. 194 ..... Rig.
Simms Oil Co.'s No. 2 A. J. Devlin ..... Drilling 299 ft.
Transcontinental Oil Co.'s No. 1 Blackstone & Slaughter, Sec. 29, Blk. 129, F. St. L. Sur. ..... Spudding.
World Oil Co.'s No. 1 Serf, SW cor. NE Sec. 10, Blk. 130, T. & St. L., elev. 3,245 ft. ..... Location.

PRESIDIO COUNTY

Headlock & Miller's No. 1 Tootle est., Sec. 123, Blk. 3, D. & P. Sur., elev. 2,912 ft. ..... Salt water 2,610 ft.; running 5-in. to 2,835 ft.
Pinto Canyon Oil Co.'s No. 1 Fields, 1,760 ft. S & E NW cor. Sec. 74, Blk. 2, D. & P. Sur. ..... Location.

REAGAN COUNTY

Henshaw & Camp's No. 1 University, Sec. 14, Blk. 49, University Land ..... Rig shut down.
Texon O. & L. Co.'s No. 1-B University, Group 1 ..... Top pay 6,284 ft.; shut down for motor 6,590 ft. with 3,800 ft. of 38.7 gravity oil in hole.
Marland Oil Co.'s No. 1 University-Anderson, Sec. 19, Blk. 58, University Land ..... Location.

REEVES COUNTY

Exploration Co.'s No. 1 A. A. Kinney, 1,500 ft. W. of NE cor. Sec. 26, Blk. C-18, Public School Land..... Spudded 20 ft. and shut down.
David R. Thompson's No. 1 A. A. Eddins ..... Drilling 1,125 ft.
World Oil Co.'s No. 1 Biggs, C SE Sec. 65, Blk. 112, Public School Land Sur., elev. 3,068 ft. ..... Shut down 1,610 ft.; tools moved to No. 1 Duff.
World Oil Co.'s No. 1 Duff, elev. 2,753 ft. ..... Show gas with six bailers oil and hole full of water 2,648-50 ft.; fishing two strings tools 3,655 ft.; 2,000 ft. fluid in hole.

RUNNELS COUNTY

Noble Oil Co.'s No. 1 Simms, Sec. 12, J. J. McHenry Sur... Drilling 1,800 ft.

SCHLEICHER COUNTY

Beavers & Leath et al's No. 1 J. A. and W. T. Whitten, C NW Sec. 35, Blk. 11, T. O. Sur. ..... Shut down 400 ft.
Thomas Grey et al's No. 1 Ball Robinson, C NW Sec. 25, Blk. M, G. H. & S. A. Sur. ..... Sulphur water 2,125 ft.; hole full water 2,160-80 ft.; drilling 2,318 ft.

STERLING COUNTY

L. Little's No. 1 Fisher Bros., Sec. 1, Blk. T. T. & P. Sur... Shut down 1,460 ft.
Orr et al's No. 1 Neal Reed, CNL Sec. 15, Blk. 30, W. & N. W. Sur. ..... Shut down 1,390 ft.
J. P. Williams' No. 3 Clark ..... Drilling 550 ft.

STONEWALL COUNTY

Peer Oil Corp. and Producers Oil Co.'s (was J. P. Johnson's) No. 1 R. P. Morrow ..... Jarring on tools 1,475 ft.
R. F. Garland & Co.'s (was McCamey & Zoch's) No. 1 J. Ward, C SW Sec. 153, Mrs. Ward Dobbs Sur., 3 mi. NW of Aspermont ..... Shut down 3,054 ft.; contract depth.

TAYLOR COUNTY

A. J. Brown et al's No. 1 Henslee, NE cor. Sec. 5, Blk. 4, S. P. R. R. Sur. ..... Fishing 1,985 ft.
Dorning & Perrine's No. 1 J. A. Hammer, C N 100 acres, Sec. 23, Blk. 19, T. & P. Sur., elev. 1,904 ft... Shut down 455 ft.
Gilbert Johnson's No. 1 C. M. Brown, Sec. 1, Blk. 6, T. & P. Sur. ..... Spudded and shut down.
Morrison & Thompson's No. 1 Mrs. Alice Rose, SW cor. NE Sec. 29, Blk. 19, T. & P. Sur., elev. 1,925 ft..... To run 6-in. by tools; bottom now 2,515 ft.
Owen & Sloan's No. 1 Lattimer, Sec. 14, Blk. 9, T. & P. Sur. ..... Drilling 2,585 ft.
Roeser & Pendleton's No. 1 Sam Hutman, C W ½ NW Sec. 64, Blk. 5, T. & P. Sur. ..... Set 10-in. at 1,201 ft.; drilling 1,525 ft.
World Oil Co.'s No. 1 J. R. Griffith, SW cor. NE Sec. 32, Blind Asylum Land, elev. 1,747 ft. ..... Good show oil 3,510-15 ft.; sandy lime; drilling 3,640 ft.

TERRY COUNTY

Kingsland Oil & Potash Co.'s No. 1 Brownsfield, C NW SW SW Sec. 7, Blk. 1-A, E. L. R. R. Sur. ..... Slight show gas 2,230 ft.; drilling 2,275 ft.

TOM GREEN COUNTY

George Amery's No. 1 Wilkey, C SW Sec. 3, B. A. L. Sur. ..... Location.
Dullahan et al's No. 1 Jacobs, Sec. 1,011, H. E. & W. T. Sur. ..... Shut down for orders 632 ft.
Fitzgerald et al's No. 1 Bennett ..... Drilling 1,110 ft.
Tulsa Oil Co.'s No. 1 Adams, C SW Sec. 162, Blk. 11, S. P. R. R. Sur. ..... Shut down 735 ft.

UPTON COUNTY

Champlin O. & R. Co.'s No. 1 J. L. Lane, SW cor. SE Sec. 3, G. C. & S. F. Sur. ..... Topped pay 1,920 ft.; drilling 1,950 ft.; flowed 120 bbls. in 24 hours.
Mark Curtis et al's (was Hultz et al's) No. 2 Giddings, 5,336 ft. S and 6,678 ft. E of NW cor. Throckmorton Co. School Land, League 1 ..... Moving in tools; spudded water well.
J. M. Hickey's No. 1 W. I. Gormley, 1,650 ft. from SW and SE lines Sec. 7, Blk. 36, H. & T. C. Sur. ..... Top salt 472 ft.; drilling red rock 1,260 ft.
Humble O. & R. Co.'s No. 6 Ricker, SE of No. 5 in Sec. 5, M. S. Denton Sur. ..... Top salt 595 ft.; drilling 1,889 ft.
Levi Smith and Marland's No. 1 University, C E ½ Sec. 17, Blk. 5, University Land ..... Hole full salt water 630-40 ft.; drilling lime 3,552 ft.
Marland Oil Co.'s No. 3 Burleson, T. C. Jones Sur. No. 100 ..... Shut down 4,610 ft.
Wise & Jackson's No. 1 J. H. Porter, SW cor. SW SW Sec. 184, Blk. E ..... Top salt 1,370 ft.; drilling 2,930 ft.

VAL VERDE COUNTY

A. Blume et al's No. 1 Moore est., Sec. 183, J. Mitchell Sur., elev. 953 ft. ..... Shut down 3,000 ft.
Curso Williams' No. 1 Holman, NNE NE Sec. 8, Blk. N, G. H. & S. A. Sur. ..... Shut down 2,940 ft.
Douglas Oil Co.'s No. 1 Sellars, C SE Sec. 82, Blk. A, I. & G. N. Sur. ..... Shut down 3,010 ft.
East Del Rio Oil Co.'s No. 1 Russell, SE cor. Sec. 183, Del Rio Town Sur. ..... Total depth 3,190 ft.; cleaning out.
Hiawatha Oil Co.'s No. 1 Sellars, C Sec. 1,031, Blk. A, I. & G. N. Sur. ..... Hole full salt water 2,455 ft.; shut down 3,503 ft.
Magnolia Petroleum Co.'s No. 1 Whitehead, Sec. 81, D. G. C. & S. F. Sur., elev. 1,770 ft. ..... Shut down 2,850 ft.
Independent Operators' No. 1 Whitehead, SE SE Sec. 30, Blk. 4, I. & G. N. Sur., elev. 1,175 ft. ..... Shut down 3,900 ft.
O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I. & G. N. Sur., elev. 2,130 ft. ..... Gas sand 2,491-2,520 ft.; tested 125,750 ft. gas; reset 8-in. 2,511 ft.; shut down 2,801 ft.

WINKLER COUNTY

Amerada Petroleum Corp.'s No. 1 J. B. Walton, SW cor. NW Sec. 48, Blk. 26 ..... Moving in rig.
Atlantic O. P. Co.'s No. 1 Ida Hendricks, SE cor. W ½ NE Sec. 44, Blk. 26 ..... Building derrick.
Atlantic O. P. Co.'s No. 1 Hendricks, Sec. 34, Blk. B-5, elev. 2,823 ft. ..... Cemented 6-in. at 2,548 ft.; shut down 2,522 ft.
V. T. Bolin's No. 1 Ida Hendrick, C SE NE Sec. 4, Blk. B-5 ..... Location.
Cranfill Brothers' No. 1 M. J. Bashara, at cor. Secs. 10, 11, 22 and 23, School Blk. 77 ..... Moving in material.
Cranfill & Reynolds' No. 1 Ida Hendrick, C SW NW NW Sec. 28, Blk. B-5 ..... Drilling 900 ft.
Group 1 Humble O. & R. Co.'s No. 1 T. G. Hendricks, C SE Sec. 36, Blk. 27, elev. 2,823 ft. ..... Fishing lugs 1,920 ft.
Humble O. & R. Co.'s No. 1 T. G. Hendricks, NW cor. NE Sec. 43, Blk. B-5, Public School Land, elev. 2,816 ft. ..... Pocket of gas at 2,500 ft.; blew tools out through rig; estimated 5,000,000 ft. gas; shut down 2,756 ft.; gas increased from 8,000,000 to 15,000,000 ft.; blew tools up in hole; stuck in pipe.
Humble O. & R. Co.'s No. 2 T. G. Hendricks, SE cor. NE Sec. 34, Blk. B-5 ..... Drilling 675 ft.
Humble O. & R. Co.'s No. 1, Group 1, T. G. Hendricks... Drilling 1,970 ft.
Independent O. & G. Co.'s No. 1 J. S. Howe-D, NE cor. W ½ SE Sec. 44, Blk. 26 ..... Building rig.
Independent O. & G. Co.'s No. 1 Hendricks-A, elev. 2,816 ft. ..... 250,000 ft. gas 2,555-75 ft.; set 8-in. 2,595 ft.; shut down 2,601 ft. (steel line measurement).
Independent O. & G. Co.'s No. 2 Hendricks-A, elev. 2,822 ft. ..... Cemented 6-in. at 2,475 ft. and shut down.
Landreth Prod. Corp.'s No. 1 Grisham-Hunter, SW cor. SW NW Sec. 45, Blk. 26, School Land ..... Rotary; drilling 1,355 ft.
Landreth Prod. Corp.'s No. 2 Grisham-Hunter, SE cor. W ½ NW Sec. 45, Blk. 26 ..... Rigging rotary.
Landreth Prod. Corp.'s No. 1 Hendricks, SE cor. SW Sec. 29, Blk. B-5 ..... Rig.
Liner Drilling Co.'s No. 1 Seth Campbell ..... Moving in rig.
McCullough Oil Co.'s No. 1 Tobe Morton, CEL Sec. 20, Blk. L-12, Public School Land, elev. 2,750 ft. ..... Top lime 3,262 ft.; 2,000 ft. sulphur water from 3,320-25 ft.; drilling 3,350 ft.
R. S. Matthews et al's No. 1 State, C Sec. 7, Blk. A-57, Public School Land Sur., elev. 3,120 ft. ..... Top salt 1,623 ft.; drilling 3,145 ft.
Murchison Oil Co., Cranfill Brothers and Marland's No. 1 Grisham-Hunter, NW cor. SW Sec. 35, Blk. B-5 ..... Top lime 2,280 ft.; 8,000,000 ft. gas 2,425 ft.; drilling 2,507 ft.
Pure Oil Co.'s No. 2 Hendricks, elev. 2,827 ft. ..... Top salt 1,518 ft.; top lime 2,390 ft.; cemented 8-in. 2,479 ft.; shut down 2,572 ft. for control head.
Pure Oil Co.'s No. 1 Hendricks-B, NE cor. SE, Sec. 34, Blk. B-5 ..... Rotary; top salt 1,395 ft.; top lime 2,276 ft.; cemented 8¼-in. at 2,284 ft. and shut down.
Republic Prod. Co.'s No. 1 Grisham-Hunter-A, NW cor. E ½ SW Sec. 45, School Block 26 ..... Rigging up rotary.
Republic Prod. Co.'s No. 1 Grisham-Hunter-B, SW cor. E ½ SE Sec. 41, Blk. B-5 ..... Rotary rig.
Roxana Petroleum Corp.'s No. 1 Grisham-Hunter-A, SW cor. E ½ NW Sec. 45, School Block 26 ..... Spudding.
Roxana Petroleum Corp.'s No. 1 Grisham-Hunter-B, SW cor. S ½ SE Sec. 28, Blk. B-5 ..... Rig.
Roxana Petroleum Corp. and Llano Oil Co.'s No. 1 Scarborough, C Sec. 1, Blk. C-22, Public School Land, elev. 2,921 ft. ..... Top salt 1,115 ft.; hole full water 1,321 ft.; 10-in. set 1,570 ft.; top pay 2,990 ft.; second pay 3,124-28 ft.; swabbed 115 bbls. July 17; total depth 3,447 ft. (steel line measurement), sulphur water; plugged back to 3,347 ft.; raised pipe to 2,975 ft.; shot with 200 qts. 3,120-3,300 ft.; hole caved in on top of tools; fishing.
Southern Crude Oil Pur. Co.'s No. 3-C Hendricks, SE cor. NE Sec. 33, Blk. B-5, elev. 2,816 ft. ..... Top salt 1,870 ft.; little gas 2,630-40 ft.; shut down for orders 2,735 ft.; making 2,000,000 ft. gas and 1 bbl. oil; top lime 2,630 ft.
Southern Crude Pur. Co.'s No. 4-C Hendricks ..... Cemented 8-in. 2,525 ft.; small show oil and gas 2,660-65 ft.; gas increased 2,689-90 ft.; estimated 3,000,000 ft. gas 2,720 ft.; 1¼ bbls. oil 2,735-40 ft.; shut down.
Southern Crude Oil Pur. Co.'s No. 1 T-88 Hendricks-B (was No. 1-D), SE cor. NE NW Sec. 4, Blk. B-12.... Top lime 2,616 ft.; shut down 2,795 ft. to connect up; 400 ft. oil in hole in 18 hours from 2,785-95 ft.
Southern Crude Oil Pur. Co.'s No. 1-F Hendricks, Sec. 33, Blk. B-5, NE cor. SE ..... Cemented 6-in. 2,529 ft.; standardized and shut down.
Southern Crude Oil Pur. Co.'s No. 1 T-89 Grisham-Hunter-A, CWL NE SW Sec. 35, Blk. B-5 ..... Top salt 1,219 ft.; top lime 2,298 ft.; standardizing 2,308 ft.
Texon O. & L. Co.'s No. 1 Central State Bank, SW cor. W ½ SE Sec. 41, Blk. B-5, elev. 2,826 ft. ..... Top lime 2,340 ft.; set 6-in. 2,340 ft.; 3,000,000 ft. gas 2,460-70 ft. and 2,500-20 ft.; more gas 2,573 ft.; another pay at 2,795 ft.; estimated 25,000,000 ft. gas; blew control head off; running 5-in.; total depth 2,814 ft.; shut down.
Texon O. & L. Co.'s No. 1 Grisham-Hunter-B, NW cor. W ½ SW Sec. 45, School Block 26 ..... Rig.
Texon O. & L. Co.'s No. 2 Grisham-Hunter-B ..... Building rig.
White Eagle O. & R. Co.'s (was Gibson & Johnson's), No. 1 R. A. Lock, 1,320 ft. W of NE cor. Sec. 30, Blk. 74, NW of discovery well, elev. 2,830 ft. ..... Total depth 1,875 ft.; cleaning out.
Southern Crude O. P. Co.'s No. 3 T-67 Hendrick-A, C SW NW NE Sec. 4, Blk. B-12 ..... Top salt 1,540 ft.; drilling 1,765 ft.
Southern Crude O. P. Co.'s No. 1 T-67 Hendrick-B, NE cor. SE Sec. 44, Blk. 26 ..... Junked hole 1,000 ft.; to skid.
Tidal Oil Co.'s (was L. D. Ladd et al's) No. 1 J. W. Amburgey, C Sec. 24, Blk. B-7, Public School Land.. Was completed at 3,447 ft. in June; now fishing tools same depth.
Southern Crude O. P. Co.'s No. 3 T-68 Grisham-Hunter-A, SW cor. W ½ NW Sec. 35, Blk. B-5 ..... Spudding.
Southern Crude O. P. Co.'s No. 1 T-88 Ida Hendricks-C, NW cor. Sec. 28, Blk. B-5 ..... Rigging up rotary rig.

Late Fields

(Continued From Page 39)

8-25-1 in Choteau County, Montana, the Genou Oil Co. has what appears to be a new producer in a wildcat district. The report was it would make a commercial producer of light oil in the Ellis sand. This field lies about 80 miles south of the Sunburst Field and one well had been drilled by the Genou Oil Co. which also had a showing of oil in the Ellis sand at 1,338 feet.

The Latah-Idaho Oil Co.'s well, northeast of Shelby in a wildcat area near the Sunburst Field, has a showing of oil in the Ellis sand that may open a new pool. The well made five bailers of oil after standing all night.

The wells drilling in the new pool on the southeast part of Sunburst are showing that part of the field to be very spotted. Four dry holes were drilled here the past week, some right in the heart of the new development.

The Adams Oil Co.'s No. 13 on the Hoskins lease on the east side of the Sunburst Field is making about 100 bbls. daily. The Big West Oil & Gas Co.'s No. 4 on the Steele lease has a small showing at 1,448 feet that may make a commercial producer.

On Section 28-35-21, the Hill and O'Neil interests have a big gasser in No. 16 after drilling three dry holes.

On Section 32-35-1, the Fifty-Six Petroleum Co. has a 25-bbl. well in the Ellis sand. Fourteen wells were reported as dusters in the Sunburst Field.

In Pondera County, near Vallier, Section 35-30-3, the Hiland Van Dale Oil Co. has drilled a deep test through the lime and into the Devonian. A showing has been found at 3,575 feet and the well is shut down waiting a shot. This is probably the first time a show of oil was ever shot in the Devonian.

Scientific Exhibits At Oil Exposition Will Show Progress

By James E. Monroe

One of the most interesting displays at the International Petroleum Exposition, to be held in Tulsa from September 24 to October 1, will be the assembly of scientific instruments, when several manufacturers will have representative exhibits in the Educational Building.

The exhibitors and management are united in their efforts to give an unusual opportunity for a review of the latest developments in scientific material pertaining to the industry. Ideals of perfection and standardization have so changed older types as to create almost a new instrument, in many cases, and such comparatively new and novel devices as the torsion balance will also form a part. Therefore, it is thought that even the best informed will find items to engage profitable attention.

All branches of the industry require methods of exact determination and a multitude of inventions or applications of specially designed equipment has gradually replaced "rule of thumb" procedure or inexact personal judgment. Each need has had its peculiar problems and taxed the ingenuity of technical men for its solution.

The problem of designing rugged mechanisms for use in the field by the oil production, natural gas and gasoline workers without sacrificing easy portability or laboratory exactness, has been solved in many instances.

German science and precision manufacturing have contributed two machines, the seismograph and the torsion balance. The seismograph is an adaptation of the familiar instrument of pure science used in recording earth tremors. The torsion balance is perhaps better known to the trade, yet it is to most an unfamiliar apparatus. A competent attendant will be present to explain the operation and application of both devices for geophysical measurement.

Refinery engineers and technologists will be able to view the latest devices pertaining to their craft. Many of the testing instruments have received the official sanction of the United States Government, the American Petroleum Institute, the National Petroleum Association and the American Society for Testing Materials or allied trade organizations. This well standardized and perfected class of equipment will be quite complete. It will include the calorimeter, chromometer, viscosimeter, distillation apparatus for light oils, carbon residue tester for lubricating oils and flash point tester. Various improved accessories for use with them also will be exhibited.

Control apparatus for refineries of the latest type also will be found here. The scientific measurement of high temperatures (600 to 1,200 degrees centigrade or higher) calls for such an instrument. The latest modern development of the pyrometer of the "total radiation" type will be shown. The interesting feature of this class of instrument, stated in nontechnical language is the gauging of high degrees of heat by focusing, with lens or mirror, the radiation upon an extremely sensitive wire contained in a vacuum tube, the resultant disturbance in the sensitive element being measured by an extremely sensitive galvanometer in terms of one-thousandths of a volt. The new type of instrument enables the operator to obtain an accurate reading in four seconds after sighting or focusing the lens.

This entire exhibit, item by item, including remarkable examples of the high-class laboratory equipment, presents the achievement of testing engineers, in which they take justifiable pride. In totality, it will be carefully assembled by the exhibitors and management of the exposition as the most complete display of scientific instruments for the petroleum industry ever attempted.

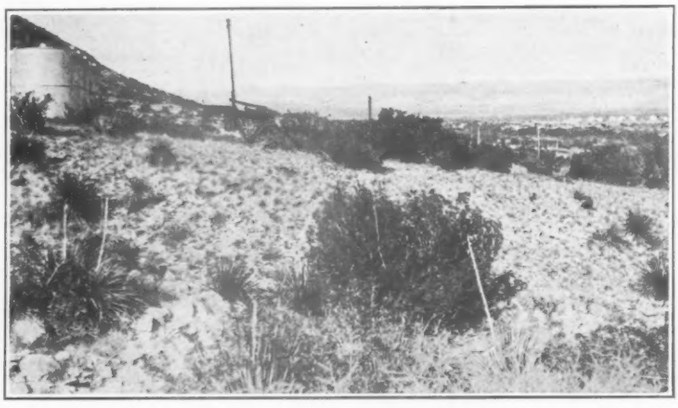
PECULIARITIES OF THE PECOS FIELD

(Continued from Page 29)

It is estimated that a Pecos County well will cost twice as much as a 2,000-foot well in the McCamey district to the north. This is because of the four or five strings of casing used to shut off the several water stratas and because of the cost of moving in and off location. A price of from $4.50 to $5 per foot is paid contractors to drill in Pecos while around $3.50 per foot is paid contractors to drill in the McCamey district. Only two strings of casing are run in wells in the McCamey district. However, drilling costs are expected to be lowered materially when Pecos gets more drilling.

Sulphur Gas

Presence of poison gas in Pecos County is not as pronounced as it is in pools to the north. However, the sulphur gas is present in sufficient volume to prompt operators to take proper precautions in drilling-in wells. One person 500 feet away from a well making gas got a "touch" of the gas and was overcome. On another lease a gauger was knocked off the top of a tank when he got a "touch" of the sulphur gas.



A machine on the side of a hill and drilling in Pecos County.

The odor of the gas, according to production men, indicates it will not be as bad as it is in the pools to the north. In the northern pools extreme caution is used in drilling-in wells making sulphur gas. Several lives have been lost in those pools. Scores of employes of various companies have got a "touch" of the gas but aside from some discomfort while they were recovering, the gas had no bad effect on them. The poison gas has corroded equipment badly in the pools to the north.

In Pecos the crew members are equipped with gas masks to be used while drilling-in a well. All of the wells are flowed through separators and many operators will burn the gas in the air rather than permit it to be blown into the air and possibly settle in a valley on a damp day. The sulphur content of Pecos crude is around 1½ per cent but no analysis of Pecos gas is available.

Air-Gas Lift

Pecos is certain to get a trial with air or gas lift but that interesting experiment is believed to be somewhat distant. The present rock pressure of the wells is around 300 to 400 pounds per square inch and in all of the wells drilled so far there has been a sufficient volume of gas to easily flow the wells. The California Co.'s first well in Pecos had more than any well drilled so far. It made around 30,000,000 feet of gas and was good for 500 bbls. of oil per hour when given a short test to see what it would do flowing wide open.

This condition is reversed in the northern pools. The rock pressure is low and there is not enough gas to flow the wells at a big rate for any length of time. Because of the volume of gas and the rock pressure Pecos wells are expected to hold their production for some time after completion. However, air or gas lift is expected to do the same for Pecos that it has for Seminole. The lime-producing formation is porous and will permit a free flow of fluid through it. In some of the wells the formation where the big pay was found was soft.

None of the wells in Pecos has been shot and none likely will be until production drops to a low point. It is the consensus of opinion that the shooting of a Pecos well will materially boost its production. Some of the big pay is rather soft while the pay in other wells is harder but in either case the pay formation has been found to be porous.

The gravity of Pecos crude will average around 30 degrees and it is a paraffin base oil. None of the steadily-flowing wells is expected to paraffin up because of the constant movement of the oil. Nor is any trouble expected in moving the oil through pipe lines. It will, in the opinion of production men, be handled as easily as the crude in the McCamey district.

One big impression Pecos makes on production men is that it will be an ideal field to operate in. The shallow and prolific pay will make it a pool noted for its low lifting costs.

Farish Estimates Output

HOUSTON, Tex., Aug. 29.—President W. S. Farish of the Humble Oil & Refining Co. has addressed a letter to the oil producers in Pecos County calling attention to the meeting to be held in the board room of the First National Bank in Fort Worth on Friday, September 2, in a second effort to prorate the taking of crude from the Yates Pool in Pecos County. Mr. Farish estimates the potential production of the Yates Pool at 88,000 bbls. per day and the potential production of the Yates, Church-Fields, Gulf, McElroy, McCamey and Hendricks pools at 240,000 bbls. per day.

He estimates the potential production by October 1 of all the pools named at 378,000 bbls., November 1 at 482,000 bbls., December 1 at 594,000 bbls. and the ultimate estimated recovery at 599,000,000 barrels and of this, Mr. Farish places the estimated ultimate recovery of the Yates Pool at 255,000,000 bbls.

Most of the production is competitive, Mr. Farish says, and it would be folly to produce oil at this time with such a limited outlet as has thus far been provided. There is, he says, no sane reason why this oil should be produced in excess of what can be transported.

West Texas Protest

NEW YORK, Aug. 29.—It is understood here that Pecos County producers are antagonistic to the Humble company proration scheme as favoring producers in other West Texas fields. The Humble is reported ready to take 30,000 bbls. daily from the Pan American in Winkler County Field but limiting all Pecos producers to 30,000 bbls. The Standard of New Jersey would not comment on the situation.

F. H. Wickett, head of the Pan American Co. is now in Shreveport.

RECENT DISCOVERIES IN FLOODING OPERATIONS

(Continued from Page 34)

production there would be much less oil left in an open reservoir rock because the the resistance to the movement of the oil by natural rock pressure is much less than in a tighter sand. We definitely know that water travels very rapidly through unsaturated sands, even though these be of low porosity, in comparison to the slow movement through a similar oil saturated sand. However, as a matter for theoretical consideration, a sand of uniform permeability and saturation may be assumed and under such conditions the important factor of capillary phenomena in oil displacement becomes quite evident. It should be remembered that the application of theoretical conclusions is limited in many cases as far as oil sands go, owing to the great variability in lithology so frequently found, even within restricted areas.

In a conical tube a drop of oil will be concave outward at both ends, but since the smaller surface has the smaller radius of curvature, it will exert the greater pressure against the air and the drop will move toward the small end of the tube. (Figure 1) Now if air or gas pressure

Figure 1

is applied so as to move the drop of oil toward the left a greater variation in the diameter of the two ends of the drop will necessitate a greater outside pressure to cause a movement of the drop in the direction from which the pressure is applied because, owing to the tendency of the drop to assume a truly spherical form, the liquid will be under pressure in consequence of the tension of the surface. After a period of long natural production, such as the Bradford Field has experienced, the interstices of the sand are certainly not entirely filled with oil. The finer pores may be filled due to the action shown in Figure 1, but it is probable that the sand grains surrounding the larger pore spaces are merely coated with a film of oil and that the

Figure 2—The author's conception of present conditions in a cross section of Bradford sand.

main part of the pore is occupied by bubbles of gas. If either air or gas pressure is applied to a partially depleted sand the effect will be to move the oil from its attached position on the sand grains and from the finer pore spaces into a position somewhat as shown in Figure 3, the pressure required to cause this movement being dependent upon the

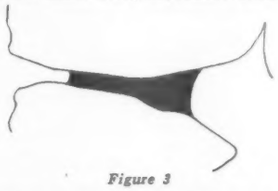


Figure 3

variation in the size of diameter of the ends of the bubble of oil in the minute passage. If the pressure is sufficient to move the oil to a larger space the drop will tend to occupy a position somewhat similar to that shown in Figure 4, where if the pressure is not high enough for the air or gas to blow through the drop, it will move on by the capillary action shown in Figure 1, into the channel connecting with the next pore space from which it will again have to be forced. For a fine-grained sand, and, therefore, a much greater pressure will be required to cause fluid movement. The natural tendency of compressed air or gas will be to push globules of oil from one pore space to another, but if the permeability of the sand is low due to minute pore spaces or semivesicular porosity, requir-

ing a high initial pressure to force the air or gas into the sand, the gas will likely break through the bubbles, reforming the oil drops into a film covering the sand grain surfaces, instead of pushing them ahead toward a well.

This theory is confirmed by the results that have been obtained in actual field tests. The only really successful air or gas floods in this region are operating at relatively low pressures and low pressures can only be used on sands of high permeability. From this it can be seen that sands such as characteristic Bradford sand, may not be expected to yield as satisfactory results from air or gas flooding as from other methods of rejuvenation. Owing to the increased resistance to the movement of air or gas which is offered by the minute pores, and, also, owing to the greatly increased retentative action of capillary forces, the pressure required in many cases exceeds the original rock pressure. Under such conditions there will be a decided tendency for the air or gas to break through the oil bubbles.

All of the information that we have indicates that water flooding is only economically successful in sands of small

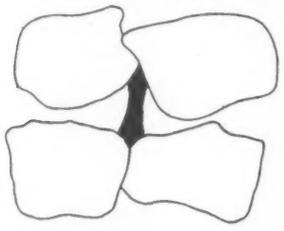


Figure 4

size pore space and this is confirmed by well-known capillary phenomena. Doctor Nutting[3] has shown that the relative attraction between water and silica is greater than between oil and silica and, therefore, water tends to displace the oil film attached to the sand grains. Since water has a surface tension about three times greater than Bradford oil, it will be more greatly attracted to the finer pore spaces than oil would under the same circumstances. In a coarse-grained sand the resistance to fluid movement is so small compared to that in the Bradford or Richburg sands that the water selects the easiest path only slightly affecting the oil which is held by capillary force in the smaller pore spaces.

In a coarse-grained sand the capillary forces are much smaller than those acting in a fine-grained sand owing to the larger capillary tubes. Therefore, the water, having but comparatively small capillary aid in a coarse-grained sand, will tend to follow the larger channels to the producing well, and thus to establish a trend of fluid movement. Once this condition is produced the effect of capillarity becomes negligible and the motivating force behind the advancing flood comes alone from the pressure at the intake well.

Summary

In 1907 the Bradford Field had a daily production of slightly over 3,000 bbls. Since then the effects of water flooding have been most noticeable. During April, 1927, the field was producing at the rate of 14,000 bbls. per day. Should the demand for Pennsylvania oil increase there seems no reason why a daily production of 25,000 bbls. could not be attained. tained.

Under the present conditions of flooding operations the field is being watered out at the rate of about 2.5 acres per day. At this rate of production the life of the field has certainly been extended for at least 50 years. The effect of increased efficiency in oil recovery will, of course, tend to increase this time. There is certainly no other field that is being so extensively operated. It is estimated that 250 wells were being completed each monthly during the early part of 1927.

In the drilling of new flood lines it is becoming more customary to disregard old wells entirely unless the location of these coincides with the flooding well pattern selected for the property on which they are located. Old wells along a flood line are usually pumped in the customary manner until they are water out, but it is very rare that they will produce as much as new wells.

[3]Nutting, P. G., "Geological Relations Between Petroleum, Silica and Water," Economic Geology, Vol. XXI, May, 1926, pp. 234-242.

PANHANDLE FIELDS

(Continued from Page 40)

County, is shut down at 3,765 feet at contract depth. It had a show of oil at 3,648-50 feet. The gas in the well continues to head up and clean the hole. When it makes a head it makes enough oil to put a light oily scum over the slush pit and keep the rig dirty. The owners are planning to drill the hole down to 4,000 feet or deeper. The Panhandle's deepest test, Big Bend Oil Co.'s No. 1 Mrs. Ledrick and Sons, Section 7, Block 5-A, Roberts County, is shut down at 5,085 feet.

Tests have been announced for two more counties in the Panhandle area. One in Lamb County and another in Bailey County. The Empire Gas & Fuel Co. has started developing its immense gas reserves in the Panhandle. Several weeks ago that company acquired the gas rights on 64,000 acres of the Burnett estate in Carson County. Last week six wells were started in as many different sections and one is drilling below 1,600 feet.

Panhandle Storage

Panhandle crude was estimated to be going to storage last week at the rate of around 18,000 bbls. daily. The pipe lines were moving approximately 56,000 bbls. daily and around 20,000 bbls. daily was being shipped out in tank cars.

Humble Pipe Line Co. will start immediately to build a 6-inch line from eastern Carson County to the Humble company's Rockwell Edge pump station, in Donley County. The line will parallel that company's 6-inch line. It is being built to keep Carson and Gray County crudes separated from Hutchinson County crude. It is reported the Humble company will build a 40-car loading rack at Rockwell Edge and ship crude from there via tank cars.

The Kansas City-Texas Gas Co. plans to supply its domestic consumers in Kansas City with Panhandle gas late in the summer of 1928, according to John L. Knorpp, Amarillo, president of the company. Mr. Knorpp recently secured a franchise to supply industrial gas to Kansas City consumers. Engineers are in Amarillo completing plans for the construction work on the line. The line will be financed by eastern capital, it was announced. It is estimated the 465-mile 24-inch line will cost around $35,000,000.

Carson County

Location was abandoned for American Refining Co.'s No. 1 S. B. Burnett, SW cor. SE, Section 129, Block 5, I. & G. N. Survey. Gates Oil Corp.'s No. 2 Burnett, NW SE, Section 107, Block 5, was completed as a 10,000,000-foot gas well at 2,980 feet. Marland Oil Co.'s No. 1 Burnett J, C NE NE, Section 121, Block 5, I. & G. N. Survey, was plugged back from 3,685 feet and completed as a 25,000,000-foot gas well at 2,760 to 2,945 feet.

Cottle County

Sun Oil Co.'s No. 1 Tom Burnett, C NW SE, Section 6, Block L, S. P. R. R. Survey, was dry and abandoned at 3,510 feet.

Gray County

Three wells were completed in the Gulf-Saunders area east of the Wilcox-Pampa Pool. Roxana Petroleum Corp.'s No. 3 Worley was recompleted and is making 110 bbls. daily on gas lift. The well came in flowing 350 bbls. daily from lime pay at 3,055-80 feet but declined rapidly. Roxana Petroleum Corp.'s No. 1 Worley, Section 39, Block 3, was completed as a 40-bbl. well after a 360-quart shot at 2,910 to 3,010 feet. Gulf Production Co.'s No. 2 Saunders, Section 40, Block 3, was shot with 420 quarts at 2,979 to 3,145 feet and made 490 bbls. initial. The well is now making around 150 bbls. Empire Gas & Fuel Co.'s No. 1 J. F. Meers, NE cor. SE, Section 107, Block 3, on the west side of the Pampa Pool, was completed as a 30-bbl. well. The well was shot with 150 quarts at 3,110-69 feet; total depth 3,172 feet. Before the shot it made 185 bbls. initial. Empire company's No. 1 Webb, SW cor., Section 59, Block 25, was plugged back to 2,400 feet and completed as a 4,000,000-foot gas well.

Hutchinson County

In the Borger district Minnehoma Oil Co. and Kistler completed No. 4 Johnson, Section 20, Block Y, M. & C. Survey, as a 150-bbl. well after a 50 and 80-quart shot at 2,977 to 3,010 feet. Mountain States Oil Co.'s No. 1 W. J. Haile, Section 24, Block M-21, T. C. R. R. Survey, about 6 miles east of the Borger district, was completed swabbing 45 bbls. daily from pay at 3,030-35 feet. In the Sanford area Oil Operators Trust Co.'s No. 1 Sanford, Section 82, Block 46, H. & T. C. Survey, was plugged back from 3,010 feet and completed as a 70,000,000-foot gas well at 2,425 to 2,871 feet. Paramount Oil Co.'s No. 2 Sanford, Section 82, Block 46, H. & T. C. Survey, in the Sanford area, was shut in as a 70,000,000-foot gas well at 2,932 to 3,073 feet. In the same area Prairie Oil & Gas Co.'s No. 1 Sanford, Section 85, Block 46, H. & T. C. Survey, made 45 bbls. initial at 2,997 to 3,009 feet. The rig was temporarily abandoned for Phillips Petroleum Co.'s No. 3 W. S. Christian. Pure Oil Co.'s No. 6 Johnson, Section 70, Block 46, northwest of Borger, was the best completion of the week in the Panhandle. The well had the pay at 2,870 to 2,908 feet and was shot with 180 quarts at 2,868 to 2,908 feet and made 678 bbls. initial. West of Borger, Rock Creek Oil Co.'s No. 1 Johnson, Section 28, Block Y, A. & B. Survey, made 10 bbls. of oil and 10,000,000 feet of gas.

NO IMPROVEMENT IN GROUP 3 MARKET

(Continued from Page 28)

taxes and insurance. The sum of these expenses will differ materially for each plant because of the difference in the investment and the amount of development expense allowed, but will generally exceed $0.40 per barrel. At this rate, the Mid-Continent refiners are losing about $0.30 per barrel of crude run. Refiners have taken losses in operation before, but in addition to the present manufacturing losses, they have had to absorb great losses in stock inventories this year, as the stores of gasoline, manufactured from high-priced crude over the first part of the year, had to be sold at prices ranging from 6 to 7 cents throughout the higher consuming season. Over short periods, it is easy to ignore certain important indirect costs of operation, such as depreciation, and it is not until the end of the year that the true balance is shown.

The more complete refining organizations comprising crude oil production, refining and marketing could afford to take a loss on the manufacturing operations at certain times. At present, however, the crude price is not sufficient to pay the production costs except in a few fields where large production has lowered the unit costs. This eliminates a profit from the production department and a similar case is true in the case of marketing. Service station prices are the lowest they have been over the past five years except for a three months' period at the end of 1924 and two months in the latter part of 1923. The present price is approximately 5 cents below that of a year ago. With competition more keen than ever before, refiners having marketing departments have added stations throughout their territories to maintain or increase the outlet for their refined products and as a result the investment and overhead expenses were increased considerably. To equalize these added costs, the margin to the station and tank wagon was gradually increased from 2 cents just a few years ago to as high as 8 cents in some localities now. This, in turn was attractive to independent jobbers operating one or two stations in which the overhead was small and the number of stations was further increased. With these conditions existing in the several departments of the complete refinery organizations, there is no consolation in the present refined oil price structure and prices for that reason are believed to be on the bottom.

REFINERY MARGIN FROM SEMINOLE CRUDE AT TODAY'S PRICES
Composite Skimming-Cracking Operation

Yields		Price	Revenue per bbl.
55.0%	Gasoline at .06¼		$1.44
7.0%	Kerosene at .04		.12
1.0%	Furnace oil at .03⅛		.01
32.0%	Fuel oil at .77½ bbl.		.25
5.0%	Loss		....
	Total		$1.82
	Posted crude price		$1.38
	Pipe line cost		.15
	Refinery cost		.19
	Total bare manufacturing cost		$1.72
	Margin for sales, overhead, interest depreciation, taxes, insurance, etc., per barrel		$ .10

Gasolines and Naphthas

A slow but rather steady movement of gasoline with U. S. Motor selling at 6¼ cents throughout the week summarizes the Group 3 gasoline market. Refiners who were quoting 6½ cents last week and thus established the range of 6¼ to 6½ cents then, had generally adopted the lower figure by Thursday. The absence of large orders eliminated any optimistic views of this market. There was no particular interest shown for the lower endpoint gasolines and they were generally weak. Within a few weeks the cooler weather will tend to increase purchases of this material, particularly for the northern states, and if it is adopted as the standard motor grade by as many additional marketers as adopted it last year, there may be as high as 25 per cent of the gasoline moved having an endpoint of 400 or less. Naphtha prices followed gasoline and were weak. The consistent natural gasoline market makes blending unattractive and there is little call for the ordinary refinery naphthas.

Kerosenes and Distillates

There were no price changes on kerosene and the movement could be only considered fair at best. The sale of 1,000,000 gallons of kerosene in Louisiana, already mentioned, tended to hold the kerosene price firm but there was no inclination to raise prices. Distillate sales were made in greater volume and the season of buying has apparently opened. A wide range of quality is being supplied with inquiries more insistent on a low price than on high quality. This is usually true at the beginning of the season, with the lighter distillates being favored later as household heating plants are put into operation.

Fuel and Gas Oils

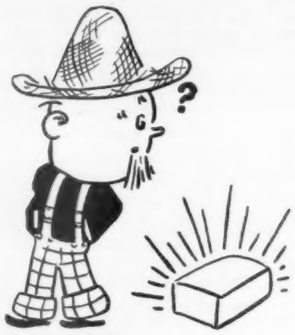
The movement of fuel oil continued to be fair but purchases were made in small volumes. A sale of 10,000 bbls. of 18-22 gravity fuel out of Texas was made at 70 cents for delivery into Colorado and indicated the weak market for that commodity. Refiners in several centers were interested in the business and the price is considered below the general North Texas market.

Lubricants and Wax

The gradual slowing up of the movement of lubricants brought price concessions from the refiners so that neutrals sold from one-eighth to one-fourth cent less. This class of petroleum products has enjoyed a more consistent market than any other. In fact, they are the only products that were held at prices allowing refiners a margin over manufacturing costs. Cylinder stocks have not followed this decline and were generally firm. Steam refined stock has had a good movement and although bright stocks have also had a good movement, there is considerable competition for the business and there is plenty available.

Natural Gasoline

Manufacturers were able to maintain last week's prices, in general, on all grades of natural gasoline and the movement continued to be fair. Export buying during the previous week and a carryover of this buying into this week supported the market on A and AA grades and the local shipments to the refineries of the lower grades maintained the entire present market structure throughout the week. The inquiries received thus far on deliveries over next month have been exceptionally few and the immediate future of the market does not seem to offer hope of higher prices.



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Over 50,000 Shaffer Boiler Gauge Cocks have been sold in the last three years. Like any successful product naturally there have been many imitators, most of which have fallen by the wayside due to corrosion. Shaffer gauges will not corrode with the worst salt water or alkali conditions —then, too, all the new boilers of Broderick, Donovan, Farrar & Trefts, Kewanee, Lucey and Titusville, come equipped with SHAFFER'S.

One of the many reasons why oil men from the British West Indies to California prefer them is the low upkeep—.25c buys a new wheel, being practically the only part necessary to make the gauges last the life of the boiler.

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All Parts Are Interchangeable

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the Standard Boiler
Gauge Cock

873,537,263 BARRELS OF CRUDE OIL PRODUCED IN U. S. IN 12 MONTHS

A total of 873,537,263 bbls. of crude oil was produced in the United States in the 12 months ending July 31. The closing week in July was the high point of production in the country for all past time. The average for that week was 2,587,105 bbls. per day and Oklahoma hit a new production peak with 885,570 bbls.

In July of this year the production of the United States exceeded that of July, 1926, by 13,779,462 bbls. and exceeded the production of January, 1927, by 5,166,156 bbls.

The peak of the production of the Seminole Field in Oklahoma also came in the closing days of July when it reached a weekly average of 514,085 bbls. per day, since which time it has fallen rapidly, due partly to proration and partly to a natural decline of old wells and fewer wells completed.

The production of all the pools in Kansas, Oklahoma, Texas, Louisiana and Arkansas and a summary of production by states and by divisions in the United States in July follows:

SUMMARY OF PRODUCING DIVISIONS
Crude Oil Production in Barrels in July, 1927

Mid-Continent Fields

	Daily Av.	Month
Kansas	111,422	3,454,082
Oklahoma	855,566	26,522,546
North Texas	100,497	3,115,407
Central Texas	52,539	1,628,709
West Texas	112,603	3,490,693
Panhandle of Texas	111,610	3,459,910
East Central Texas	32,330	1,002,230
Arkansas	109,893	3,406,683
North Louisiana	56,496	1,751,376
Total July	1,542,956	47,831,636
Total June	1,480,050	44,401,500
Difference	62,906	3,430,136

Gulf Coast and Southwest Texas

	Daily Av.	Month
Gulf Coast (Tex.-La.)	142,985	4,432,535
Southwest Texas	32,443	1,005,733
Total July	175,428	5,438,268
Total June	187,760	5,632,800
Difference	12,332	194,532

Production by States

	Daily Av.	Month
Kansas	111,422	3,454,082
Oklahoma	855,566	26,522,546
Texas	567,974	17,607,194
Arkansas	109,893	3,406,683
Louisiana	73,529	2,279,399
Total July	1,718,384	53,269,904
Total June	1,667,110	50,013,300
Difference	51,274	3,256,604

Production of the United States

	Daily Av.	Month
Oklahoma	855,566	26,522,546
California	623,194	19,319,021
Texas	567,974	17,607,194
Arkansas	109,893	3,406,683
Kansas	111,422	3,454,082
Louisiana	73,529	.....
Rocky Mountain	85,020	2,635,607
Eastern Fields	112,000	3,472,000
Total July	2,538,598	78,696,538
Total June	2,500,606	75,018,179
Difference	37,992	3,678,359

KANSAS
Daily Average and Total Monthly Production in July, 1927

Marion County—	Daily Av.	Month
Florence	732	22,692
Peabody	1,438	44,578
Covert-Sellers	774	23,994
Lost Springs	200	6,200
Total	3,144	97,464
Butler County—		
Elbing	2,507	77,717
Potwin	399	12,369
Cameron-Robinson	547	16,957
Wilson-Dunkle	1,492	46,252
Towanda	2,658	82,398
Fox-Bush	1,264	39,184
Nuttle-Koogler	1,928	59,768
Eldorado	7,705	238,855
Smock	232	7,192
Leon-Weaver	3,506	108,686
North Augusta	1,237	38,347
South Augusta	1,801	55,831
Sluss	354	10,974
Benton	70	2,170
Douglas	131	4,061
Keighly	2,294	71,114
Eastern Butler	1,248	38,688
Total	29,373	910,563
Greenwood-Woodson Counties—		
Sallyards	1,398	43,338
Teeter-Pixley-Scott	10,516	325,996
Virgil	4,520	140,120
Thrall-Burkett	2,486	77,035
Seely	10,260	318,060
Polhamus	1,420	44,020
Miscellaneous	2,334	72,354
Total	32,933	1,020,923
Cowley County—		
Rainbow Bend	2,151	66,681
Slick	1,202	37,262
Graham	581	18,011
Rock (Twp. 30-4)	254	7,874
Clark (Twp. 31-5)	204	6,324
Eastman—		
(Twps. 30-6 and 31-6)	658	20,398
Winfield-New Salem—		
(Twps. 32-4 and 32-5)	3,273	101,463
Miscellaneous	697	21,607
Total	9,020	279,620
Other Counties—		
Sumner	16,691	517,421
Rice	2,032	62,992
Russell	2,783	86,273
Harvey	42	1,302
Kingman	19	589
Chautauqua	2,411	74,741
Elk	2,360	73,160
Montgomery	1,316	40,796
Wilson	233	7,223
Allen	616	19,096
Reno	30	930
Neosho	601	18,631
Lyon	1,797	55,707
Miami	1,983	61,473
Franklin	407	12,617
Douglas	67	2,077
Bourbon	18	558
Woodson	749	23,219
Linn	222	6,882
Anderson	2,261	70,091
Coffey	263	8,153
La ette	51	1,581
Total July	111,422	3,454,082
Total June	118,586	3,437,580
Difference	7,164	16,502

OKLAHOMA
Daily Average and Total Monthly Production in July

	Daily Av.	Month
Washington County	5,955	184,605
Nowata County	3,913	121,303
Rogers County	1,586	49,166
Osage and Eastern Kay Counties—		
Burbank	41,279	1,279,649
Osage, outside Burbank	30,091	932,821
Total	71,370	2,212,470
Tulsa County—		
Bird Creek, Owasso, etc.	3,714	115,134
Red Fork, Sand Springs, Bruner, Turkey Mountain and Fisher	4,005	124,155
Bixby, Leonard, Jenks,	2,607	80,817
Broken Arrow, Coweta	1,191	36,921
Total	11,517	357,027
Okmulgee, Muskogee and North Okfuskee Counties—		
Mounds, Beggs, Hamilton Switch, Youngstown	8,301	257,331
Bald Hill and Haskell	3,473	107,663
Morris, Boynton, Cole	3,191	98,921
Okmulgee	2,485	77,035
Tiger Flats, Henryetta, Schulter, Bartlett	2,150	66,650
Total	19,600	607,600
Okfuskee, Seminole and Hughes Counties—		
Seminole—		
Seminole City	93,466	2,897,446
Earlsboro	148,634	4,607,654
Searight	33,055	1,024,705
Bowlegs	187,438	5,810,578
Little River	12,244	379,564
Total Seminole	474,837	14,719,947
Deaner Lyons	3,303	102,393
Wewoka	18,684	579,204
Cromwell	12,510	387,810
Papoose-Gilcrease	6,415	198,865
Weleetka	1,028	31,868
Holm-Jarvis	1,369	42,439
Yeager	706	21,886
Miscellaneous	1,637	50,747
Total	520,489	16,135,159
Creek County—		
Cushing-Shamrock	18,505	573,655
Glenn Pool, Sapulpa and Kiefer	7,887	244,497
Bristow, Kellyville and Depew	19,224	595,944
North Bristow, Pickett Prairie	5,067	157,077
Eastern Bristow or Slick	4,406	136,586
Total	55,089	1,707,759
Pawnee County—		
Cleveland	3,262	101,122
Keystone	2,849	88,319
Jennings	3,434	106,454
Otoe or Watchorn	1,609	49,879
Masham	45	1,395
Ralston	169	5,239
Total	11,368	352,408
Payne County—		
Yale, Quay and Ingalls	5,355	166,005
N. Cushing or March Pool	2,818	87,358
Deep Rock	2,407	74,617
Total	10,580	327,980
Lincoln County—		
Stroud	1,216	37,696
Davenport	3,239	100,409
Kendrick	611	18,941
Total	5,066	157,046
Kay, Grant and Noble Counties—		
Blackwell	1,451	44,981
Otstot	1,174	36,394
Vernon	813	25,203
Deer Creek	773	23,963
Ponca City	824	25,544
Mervine	331	10,261
North Braman	2,965	91,915
South Braman	2,730	84,630
Hubbard	5,360	166,160
Thomas	4,733	146,723
Tonkawa	20,025	620,775
Billings	238	7,378
Miscellaneous	425	13,175
Total	41,842	1,297,102
Garfield County—		
Garber	11,869	367,939
Logan County—		
Marshall	2,386	73,966

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Carter County—		
Healdton	15,058	466,798
Hewitt	9,830	304,730
Graham	5,247	162,657
Fox	3,914	121,334
Brock	1,080	33,480
Tussy or Scholem Alechem	15,295	474,145
Total	50,424	1,563,144
Stephens-Cotton Counties—		
Loco-Milroy	2,296	71,176
Comanche	958	29,698
Duncan	5,061	156,891
Walters	940	29,140
Kilgore	166	5,146
Total	9,421	292,051
Jefferson County—		
Hambro	1,797	55,707
Caddo County—		
Cement	1,927	59,737
Garvin County—		
Robberson	2,547	78,957
Grady County—		
Knox	9,123	282,813
Beckham County—		
Sayre	62	1,922
Pontotoc County—		
Allen, Lloyd, Francis, etc.	1,643	50,933
Pottawatomie County—		
Maud	953	29,543
Pearson	4,931	152,861
Marshall County—		
Madill	108	3,348
Total July	855,566	26,522,546
Total June	761,011	22,830,330
Difference	94,555	3,692,216

NORTH AND CENTRAL TEXAS
Daily Average and Total Monthly Production

North Central Texas—	Daily Av.	Month
Burkburnett	12,676	392,956
Electra	14,312	443,672
Iowa Park K. M. A.	3,855	119,505
Archer County	26,671	826,801
Clay County	688	21,328
Wilbarger	12,853	398,443
Montague County	11,666	361,646
Young County	10,404	322,524
Baylor County	86	2,666
Throckmorton County	1,633	50,623
Cooke County	4,961	153,791
Jack County	692	21,451
Total	100,497	3,115,407
Central Texas—		
Stephens County	9,796	303,676
Ranger	9,605	297,755
Comanche County	1,202	37,262
Erath County	348	10,788
Brown County	18,368	569,408
Callahan County	3,738	115,878
Coleman County	1,229	38,099
Palo Pinto County	512	15,872
Shackelford County	6,040	187,240
Jones County	1,701	52,731
Total	52,539	1,628,709
West Texas—		
Reagan County	20,421	633,051
Mitchell County	4,006	124,186
Winkler County	1,203	37,293
Howard County	3,513	108,903
Scurry County	52	1,612
Upton-Crane Counties	76,853	2,382,443
Crockett County	1,434	44,454
Loving County	17	527
Pecos County	5,056	156,736
Glasscock County	34	1,054
Ector County	14	434
Total	112,603	3,490,693
Panhandle—		
Carson County	10,318	319,858
Hutchinson County	89,648	2,779,088
Moore County	106	3,286
Wheeler	2,239	69,409
Gray	9,265	287,215
Potter	34	1,054
Total	111,610	3,459,910
East Central Texas—		
Powell	15,558	482,298
Mexia	10,306	319,486
Nigger Creek	2,079	64,449
Currie	709	21,979
Richland	773	23,963
Wortham	2,905	90,055
Total	32,330	1,002,230
Total all fields July	409,579	12,696,949
Total all fields June	440,427	13,212,810
Difference	30,848	515,861

NORTH LOUISIANA
Daily Average and Monthly Production in July

	Daily Av.	Month
Bellevue	1,401	43,431
Caddo light	16,453	510,043
Caddo heavy	5,532	171,492
Cotton Valley	5,510	170,810
DeSoto and Red River	4,050	125,550
Elm Grove	670	20,770
Haynesville	7,495	232,345
Homer	4,968	154,008
Urania	9,532	295,492
Pleasant Hill	885	27,435
Total July	56,496	1,751,376
Total June	47,834	1,435,020

ARKANSAS
Daily Average and Monthly Production in July

	Daily Av.	Month
Smackover heavy	86,415	2,678,865
Smackover light	10,887	337,497
El Dorado	5,928	183,768
Lisbon	3,612	111,972
Nevada	1,595	49,445
Bradley	125	3,875
Stephens	1,331	41,261
Total July	109,893	3,406,683
Total June	112,192	3,685,760

GULF COAST
Daily Average and Monthly Production

District—	Daily Av.	Month
Boling	2,131	66,061
Batson	1,285	39,835
Blue Ridge	3,963	123,008
Barber Hill	925	28,675
Big Creek	3,194	99,014
Damon Mound	844	26,164
Dayton	375	11,625
Edgerly (La.)	1,344	41,664
Goose Creek	7,914	245,334
Humble	4,340	134,540
Hull	15,015	465,465
High Island	189	5,859
Jennings (La.)	1,210	37,510
Lockport (La.)	6,875	213,125
Markham	394	12,214
Nash	951	29,481
Orange	5,111	158,441
Orchard	82	2,542
Pierce Junction	6,510	201,810
Piedras Pintas	100	3,100
Spindletop	54,155	1,678,805
Saratoga	1,205	37,355
Sour Lake	4,220	130,820
South Liberty	2,754	85,374
Vinton (La.)	6,830	211,730
Stark (La.)	750	23,250
West Columbia	9,275	287,525
Welsh-Anse La Bute (La.)	24	744
*Miscellaneous	1,020	31,620
Total July	142,985	4,432,535
Total June	153,754	4,612,620
Difference	10,769	180,085

*Includes Nacogdoches, Washington Counties, Kleberg County and scattered.

SOUTHWEST TEXAS
Daily Average and Monthly Production in July

Field—	Daily Av.	Month
Luling	16,308	505,548
*Mirando	11,910	369,210
Somerset	1,095	33,945
Calliham	25	775
Rockdale-Minerva	1,115	34,565
Lockhart	1,990	61,690
Total July	32,443	1,005,733
Total June	34,006	1,020,180
Difference	1,563	14,347

*Includes Webb, Jim Hogg and Zapata Counties.

WITH AMERICAN CABLE

Charles A. Perryman, for 14 years connected with the Wickwire Spencer Steel Co., being sales manager the last eight years of that time, is now associated with the American Cable Co., Inc., with headquarters at 105 Hudson Street, New York. Mr. Perryman and George C. Moon, vice president of the American Cable Co. were in Tulsa recently making a survey of conditions in the oil business.

Charles A. Perryman

ANOTHER PECOS SUIT

AUSTIN, Tex., Aug. 27.—Legality of the state law allowing the land department to relinquish fifteen-sixteenths of oil and mineral right to land purchasers was attacked again in the Supreme Court when P. L. Buvens of Harris County filed a motion for right to bring mandamus proceedings against Land Commissioner P. T. Robison, forcing him to issue an oil and gas prospecting permit on 880 acres of land in Pecos County. The land is held now by I. G. Yates, named respondent in the suit with Robison. Yates got the land from the State by an application filed in 1919 and granted April 30, 1927.

DANES USE OIL ENGINES

The Danish State Railways will use Diesel locomotive exclusively on the Naestved-Ringsted line, according to advices received by the United States Department of Commerce.

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Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

The Question and Answer Department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry. Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

ROTARY DRILLING—CAVING SAMPLING AND OIL INDICATIONS

When running mudded water into an oil prospecting (rotary) drill hole at say 3,000 to 5,000 feet in depth, does the presence of the mud in the water in any way prevent the caving of the hole? It appears to me that when clay is added that one cannot depend upon the material that is being discharged because the sample from the sludge contains the well cuttings and some of the added particles. Assuming a commercial well at this depth to be 50 bbls. a day, would the oil show at the surface in a rotary hole filled with mud and water?—J. I. M.

Within recent years improvements in equipment and practice in rotary drilling have been most rapid, so that, whereas 10 years ago rotary drilling was largely done in a hit and miss fashion, and consequently quite unreliable, it appears today, assuming modern equipment and competent drillers, that a rotary well can be drilled with little likelihood of passing up any productive formation. It is absolutely essential that mudded water be circulated in a rotary drilled hole in order to make certain that the wall of the hole as drilled shall be plastered off in such a manner that it will not cave, thus making unnecessary the running of several strings of pipe as in the cable tool hole.

The presence of the rotary mud does not at all preclude a competent driller from knowing what formation he is drilling or from actually obtaining a sample of such formation as drilled. These samples of the formation drilled are usually secured either by a core barrel, which takes an actual cross section of such formation, or by placing a fine screen at the discharge of the hole in such manner that a sample may be obtained, and, after being washed, as in the case of cable tool cuttings, indicate definitely the formation. Good rotary practice, where it is not deemed advisable or necessary to go to the expense of core barreling, will prompt the driller to hold his drill stem off bottom and continue to circulate the mud for about 40 minutes, in the case of a 3,000-foot hole, in order to obtain cuttings from the formation just drilled.

The opinion may be expressed that in most cases one would not detect any showing of oil in the rotary mud coming from a 5,000-foot hole that had encountered an oil-bearing formation capable of producing 50 bbls. a day. It is known that wells which have produced well into the thousands of barrels a day did not show even a rainbow at much lesser depth. Also examples may be given of wells drilling in a formation about 3,000 feet deep that showed oil plainly in the rotary discharge but did not prove productive of oil in commercial quantities.

The statement made about the plastering effect of the rotary mud and that regarding the lack of oil in such mud as circulated from a well which was a big producer, are what cause the prejudices in the minds of so many people who are not thoroughly familiar with the rotary practice. It must be admitted that the solution of the obvious hazard involved, that of sealing off a productive horizon without knowing it, is the human factor. However, given an experienced, competent driller, it is not at all likely that a productive sand would be drilled through without the driller standing on the derrick floor knowing it on account of the difference in the feel of the drill stem as it changes from one formation to another.

RAILWAY PASSENGERS AND THE AUTOMOBILE

Can you furnish me with information showing how railway passengers have been reduced in number because of the number traveling by automobile and bus? —D. M. C.

There are numerous reports made by the railroads and available through the Department of Commerce, Washington, D. C., which will furnish detailed information on this subject. The Scientific American has presented a partial analysis of the condition as follows:

The total number of railway passengers has declined by 15 per cent in the vicinity of the Great Lakes, and as much as 68 per cent in the Southwest region. The latter in 1920 carried some 67,500,000 passengers, but last year only about 21,550,000. In the whole eastern system of railways there has been a decline of 22 per cent, for the southern district of 42 per cent, and for the western district a decline of 47 per cent, as compared with the numbers carried in 1920.

This decline in the number of railway travellers has coincided with a period of average high prosperity in the country, from which it may be inferred that no curtailment of the traveling tendency of our population has occurred. On the contrary, it is extremely probable that we travel much more today than at any previous period, but by the motorcar and the motor omnibus instead of the railway. This is shown by the fact that the losses of passenger traffic by the railways is principally on the shorter hauls.

Translated into dollars, this decline in passenger traffic by the three great railway groups in the United States represented last year a loss of $91,400,000 for the eastern railway system; of $46,400,000 for the southern group of railways, and $207,000,000 for the western group, showing a total loss of $345,000,000 in all, due to the inroads made on the traffic by the motor car and the motor omnibus.

ANTIKNOCK VALUE IN TERMS OF BENZOL

What is the relative antiknock value in terms of percentage of benzol of the unsaturated, napthene and aromatic hydrocarbons found in motor fuels.—F. F. M.

The relative values using benzol as a base is five parts naphthene hydrocarbons are equivalent to one part of benzol, and four parts unsaturated hydrocarbons are equivalent to one part of benzol. This relationship holds in a remarkable manner for certain types of cracked products, such as Mid-Continent. However, there are a number of exceptions in gasolines derived from different cracking stocks throughout the world, so that the relative ratios given above have only specific application.

It is highly doubtful that any ratio will apply universally for the reason that we are discovering that specific hydrocarbons have antiknock properties far beyond other members of the same groups. As an illustration, heptane in the paraffin series is a high-knocking hydrocarbon, whereas iso-octane is high antiknock. Hence, no real answer to the question can be given as the subject is still in a state of experimentation. The whole problem of antiknock testing is in a state of flux whether you endeavor to relate chemical properties to antiknock values, or use test motors, or both.

Motor testing is in a chaotic condition and a recent co-operative series of testing in various motors has disclosed that not one answers for all needs. As an illustration, one motor will rate the motor fuel as high antiknock, whereas another test motor will show it to be low. It will probably take several years before a final method is evolved for evaluating knocking properties of groups of hydrocarbons or mixtures thereof.

FREIGHT RATES OF GASOLINE

Will you kindly give me the weight per gallon of gasoline ordinarily used when estimating freight rates?—F. F. M.

The freight classification of petroleum products, based on the weight per gallon, for tank car shipments was given on this page in The Oil and Gas Journal for November 11, 1926.

The freight classification for tank car shipments in the western territory for all grades of gasoline, naphtha, kerosene and light distillates is 6.6 pounds per gallon.

EXCESS AIR FOR COMBUSTION

Can you give me the engineering society table which shows the percentage of excess air according to the amount of CO_2 found in the flue gas?—A. W. M.

The table given below has been published by the American Society of Mechanical Engineers.

Pct. CO_2 in Flue Gases	Pct. Excess Air	B.t.u. Loss per Lb.	Pct. Fuel Loss
15.6	0	0	0.0
16	5	75	0.4
14	10	186	1.0
13	18	317	1.7
12	28	447	2.4
11	40	633	3.4
10	54	856	4.6
9	70	1118	6.0
8	93	1435	7.8
7	120	1900	10.2
6	152	2460	13.2
5	198	3205	17.2
4	273	4380	23.5
3	396	6340	34.0
2	635	10150	54.0

The quantity of CO_2 which may be present in the flue gases varies with the fuel, so the above cannot be exactly true under all conditions but serves very well as a guide.

HYPOCHLORITE SOLUTIONS

In addition to your comments on the hypochlorite process for treating, in answer to J. F., August 18, will you kindly give an outline of the merits of both kinds of solutions? That is the hypochlorite prepared either with caustic soda or with lime.—F. S. O.

The question of convenience and expense is usually the determining factor. Under some conditions caustic soda may be obtained with more convenience than lime, but under other conditions lime may be abundant and obtained at less cost.

Ease of solution and control conditions are points in favor of the caustic soda. The quantity of chlorin should be very close to a 0.3 normal solution and the quantity of free alkali between 0.5 to 1.0 grams per liter. If there is too little free alkali in the solution there will be a tendency to decomposition and the matter of control so difficult that the process becomes dangerous when applied on an industrial scale. An excess of alkali appears to slow down the reaction.

The bulk and low rate of solution are objections to lime. On a basis of equal activity the quantity of lime necessary is less than required by the caustic soda solution.

The method for making the hydrochlorite solutions follow: Calcium hypochlorite may be made by passing chlorin, from a cylinder containing liquid chlorin, into milk of lime until a clear solution is obtained. This solution will have a strength of about 2.5 normal and must be diluted with water eight times before use. This will give a solution equivalent to 0.3 normal and has the same value as the sodium hypochlorite solution. Some treating may be done with the solution made from the commercial bleaching powder by agitating it with water, but this practice is too expensive except on a very small scale. Milk of lime is made by mixing lime and water in the proportions of 25 pounds of lime to 225 gallons of water. Hydrated lime may be poured into the water and the mixture stirred or circulated through a pump.

HARDNESS OF DRILLING BITS

How deep in the steel of ordinary drilling bits does the temper extend? Is the steel as hard a quarter of an inch from the surface as at the surface?—C. G. H.

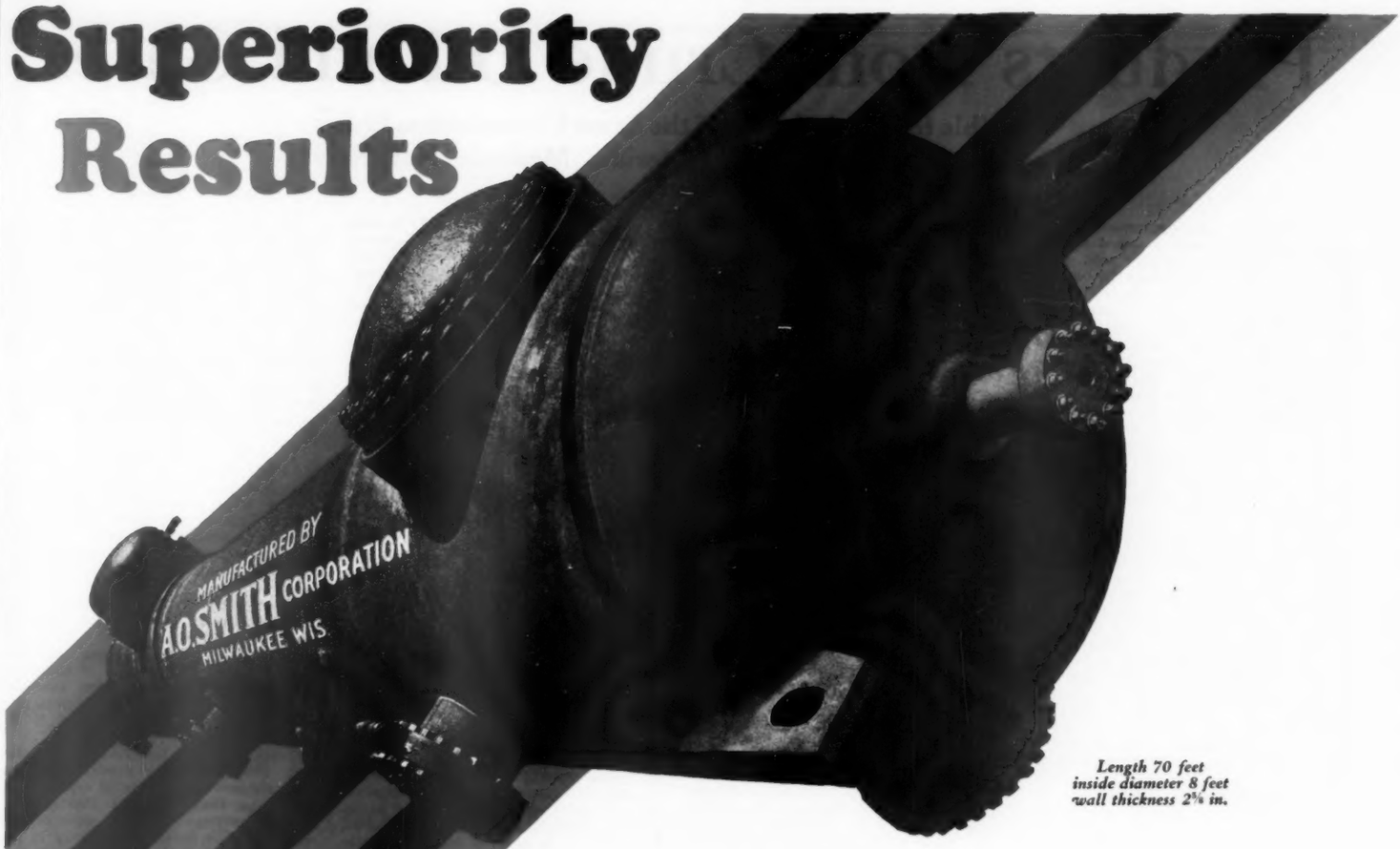
The hardness of steel depends upon the percentage of carbon. The very hard, high carbon, steels are used for small tools, dies, small springs, screws, etc. Files, saws and razors may contain as much as 1.5 per cent carbon and are extremely brittle. The steel which is used in drilling bits usually contains from 0.65 to 0.75 per cent carbon.

When steel, such as a drill bit, is heated to a cherry-red and then suddenly cooled in water or oil it will harden; if the hard steel is heated to cherry-red and then slowly cooled it will be softened. So then by proper heating and cooling, hardening and softening may be obtained at will. The character of the carbon is changed by this heating process and the extent to which this action will penetrate the metal must depend upon the heating and working of the bit. The tempering depends on the skill to judge the correct temperature as indicated by the color of the bit when heated. Differences of even 5 or 10 degrees imparts a different shade as the steel becomes hotter in the fire and the change in the properties, including hardness, become less toward the center of the mass or away from the heated zone. When the tempering has been concentrated at the surface the steel will be softer a quarter of an inch beneath; however, it is indicated above that the bit may be dressed under conditions which will give a softer surface than that inside.

The following table showing the colors of steel at high temperatures may be of interest.

Degrees F.
752—Red, visible in the dark.
885—Red, visible in twilight.
975—Red, visible in daylight.
1077—Red, visible in sunlight.
1292—Dark red.
1472—Dull cherry-red.
1652—Cherry-red.
1832—Bright cherry-red.
2012—Orange-red.
2192—Orange-yellow.
2372—Yellow-white.
2552—White welding heat.

Superiority Results



Length 70 feet
inside diameter 8 feet
wall thickness 2⅛ in.

from:

First—Every step of manufacture is under the control of technical experts, skilled in the design and manufacture of pressure vessels.

Second—Only the finest part of the metal is used. To obtain the high quality steel used in Smithsteel Cracking Stills we discard without exception in excess of 50% of all ingot metal.

Third—Machining and forming is such that even minor defects in the steel plate would be automatically revealed.

Finally—Every Smithsteel Vessel is tested with hot oil to pressures which may be three or four times as great as those which the vessel will encounter in actual operation. These tests are invariably made in the presence of the purchaser's representative.

A. O. SMITH CORPORATION :: :: *Milwaukee, Wisconsin*
Oil Field Products Division Los Angeles

Products from Crude Oil and Gases

Possible to Obtain Many of the Same Commodities Using Liquid or Gas as Raw Material. Methods Not New

By C. R. Burke

NEW PRODUCTS AND PROCESSES

In this article C. R. Burke gives his observations relative to many of the recent developments covering the new products now being obtained on a commercial basis in refinery processing and natural gasoline manufacture. Mr. Burke has been connected with the petroleum refining and natural gasoline industries for many years, and his conclusions will be of interest to those who are keeping in close touch with changes in the manufacturing branches of the petroleum and gas world which directly or indirectly affect marketing conditions.

Mr. Burke discusses many of the early discoveries which were not considered of particular significance at the time but which are now of great importance, due to their commercial possibilities. His observations give an insight as to some of the probable future developments.

In addition to the overproduction of crude petroleum, much is heard of late regarding so-called new products, such as liquefied gases of various vapor tensions, "airplane" and "antiknock" gasolines or motor fuels produced both by the refining of crude petroleum and its products and of natural gasoline and its products. One is compelled to wonder if we are to have a new trade war, namely one between the refiners of petroleum with their own marketing facilities direct to the consumer, the natural gasoline producers and refiners of petroleum without their own direct marketing facilities to the consumer, and the present marketers of petroleum products without manufacturing facilities.

Much is also heard of the new processes which will be utilized in the making of the new products. Some are patented, some yet held to be secret, with patents applied for. Looking backward upon both products from petroleum and natural gas, it appears that in the sense of "not known of" there is none which is being announced as about to be produced, rather that those termed new are in fact simply those to which attention has, from time to time, been called as either having been produced and used for certain purposes or advice given that they could be commercially produced if desired.

Production of Helium

In considering the products which, for many years, have been known could be obtained from natural gas, we find that, during the World War, when the production of helium from natural gas was announced to be commercially undertaken, it was generally understood that it was a new product. As a matter of fact, Drs. Hamilton P. Cady and David F. McFarland, at the University of Kansas, had some six or eight years (that is, in 1905 and 1907) before the outbreak of the war separated helium from a number of samples of natural gas with different gas fields, using an apparatus with liquid air and cocoanut charcoal for that purpose. The determination of helium use was made in determining the property of the charcoal in absorbing all gases except helium, neon and hydrogen when cooled with liquid air.

They also then called attention to the presence of propane, butane and pentane and still higher members of the paraffin series in natural gas, and stated that "the amount of them which is normally present in the gas from wells is very difficult to determine satisfactorily. It is probable that only a long series of fractional distillations of the liqefied gases will prove conclusively the quantities present."

Later, natural gasoline was produced and marketed, and the long series of of fractional distillations mentioned were made by Col. George A. Burrell and the Burrell analytical method and apparatus developed.

During the World War, however, Dr. James B. Garner, then with the Mellon Institute of Industrial Research, as well as the Hope Natural Gas Co., more definitely than anyone else, the writer thinks, publicly called attention of members of the natural gas industry to the number of products which not only were being commercially obtained from natural gas, but also could be when desired.

Some of them, other than natural gasolines, were as follows:

1. Gases of practically any B. t. u. per cubic foot desired, with greater volume than the original treated and the production of certain grades of carbon black, in large quantities, by one process. The writer has further understood, in connection therewith, that the gas of lower B. t. u. per cu. ft. may be produced by another or other methods without such increased production of carbon black.

2. Amyl Acetate. Doctor Garner cursorily described a process then in use for its production, and stated that he believed the commercial possibilities of hexane, heptane and octane were even greater than those of pentane, and suggested the preparation of fatty acids from them by well-known and well-tested chemical reactions and methods of synthesis.

3. Benzol and toluol, from propane and butane and the gasoline hydrocarbons.

4. Propane, to be marketed in liquid form.

5. Butane, to be likewise marketed in liquid form. Doctor Garner gave the average physical properties of each, and stated that one plant was then producing some 2,200 gallons per day, and further advised that those gases had been found suitable for the following purposes: Cutting metals, and might be so found, using a suitable torch, for welding purposes; lighting, heating, particularly cooking, stationary engines and automobiles.

He gave a record of comparative tests, using butane as an automobile fuel in comparison with a gasoline of 76 degrees Baume gravity. He said the butane gave the greater number of miles per gallon. He further stated that in the maximum power tests conducted at the Mellon Institute, various fuels were tested, and the total horsepower developed by all the fuels used did not vary from one another more than 1 per cent.

Considering the above and the growing demand for "airplane" fuel, may it not be found that a liquefied gas will prove the best for that purpose? Either propane or butane or a combination of both may also be used for carbureting water gas in place of gas oil.

Discharge Gas

Doctor Garner further called attention to the fact that the discharge gas from gas engines contained nitrogen and carbon dioxide, and that liquefied carbon dioxide and nitric acid and ammonia may be produced from such gas. He also determined that from "cracked" natural gas containing unsaturated hydrocarbons of the olefin series these unsaturated hydrocarbons may be used by simple chemical reactions for the manufacture of glycols, industrial alcohol, acetaldehyde, aceticacid, acetone, chlorinated olefin solvents. He said that methane should yield, when properly treated, methyl alcohol, formaldehyde, formic acid or carbon monoxide and carbon dioxide.

The natural gas companies were then, with few exceptions, the only ones who produced absorption gasoline. The Hope Natural Gas Company and Oklahoma Natural Gas Company made such gasoline with gravities running from approximately 72 degrees to 76 degrees, Baume, initial boiling point, 85 degrees to 100 degrees Fahrenheit. Final boiling point, 300 degrees to 320 degrees Fahrenheit. Vapor tension from 5 to 8 pounds at 100 degrees Fahrenheit.

Doctor Garner also states that natural gas when treated with chlorine will give carbon tetra chloride, chloroform, methylene chloride, methyl chloride, muriatic acid. The gas used in the test made was furnished by the Equitable Gas Co. to the Mellon Institute. He also gave a list of the patents covering processes which might be utilized to produce some of the products he mentioned, and covering the production of artificial rubber from butadiene.

At the time Doctor Garner called the attention of the natural gas industry to the commercial production of some of the products named and possible production of the others, when the need came, the desirability of absorption gasoline was held to be that it contained little if any of the propane and butane constituents which were apparently prevalent in compression gasoline.

Rosanoff Discoveries

Dr. Martin A. Rosanoff, then with the Mellon Institute, had, however, in 1918, during the Saybolt case, operated compression gasoline by fractional distillation or rectification into various constituents or fractions, and suggested that if one desired to extract the gasoline hydrocarbons more or less completely from natural gas or to obtain any desired product therefrom, he could liquefy the natural gas as a whole, then subject this liquid to fractional distillation or rectification. The two, properly conducted, practically speaking, are synonymous, as far as the results obtained are concerned. As to complete liquefaction of the gas, he did not make that as a practical suggestion for general commercial operations.

Dr. F. A. Woidich, in his first patent, suggested the use of rectification in natural gasoline plants.

Apparently, however, it remained for James A. Rafferty and Harold E. Thompson of the Carbide and Carbon Chemical Corp. to convince the industry that butane in generous proportions was desirable in natural gasolines, and while Blau, Snelling, Peterson, Kerr, Burrell, Garner and others had the vision to see the possibilities of great profit from producing and selling liquefied gas, it remained for representatives of the same Carbide and Carbon Chemical Corp. to focalize the attention of the industry on such possibilities through obtaining the desired products by the use of rectification.

From all the foregoing it is thought one may at least obtain a fair idea of what products may be produced from natural gas, and it may be seen that if natural gasoline manufacturers desire to spend the money to make various grades of gasoline, even with antiknock qualities, and manufacture liquefied gases for various purposes, they may do so. If it be a wise course for them to pursue is apparently another question. One may also judge if any really new products may be made, or if any new processes will be used in their manufacture.

Let us now consider crude petroleum and the products which not only have been, but which we have been informed may be obtained and marketed. In doing so, looking backward, it appears that it can be fairly stated that not only may each and every product which may be produced from natural gas be obtained from crude petroleum and its products, but also that, today, due to the advance made in the perfection of "cracking" processes, such products may be manufactured, when desired, as readily and economically.

Years ago at the refinery of Charles M. Pratt & Co., on Long Island, New York, gasolines of practically any desired gravity were constantly produced, and even a liquefied gas, called "Chimogene," which was practically butane. An 86 to 88 degree gravity, Baume, gasoline was produced and sold in quantities for machine purposes.

Later the Atlantic Refining Co. at Point Breeze, Philadelphia, produced and sold a product called "Pentane," which was mostly used by gas companies for testing the candlepower of their gas. It was not pure pentane, but answered the purpose, and commercially pure pentane could have been produced if desired.

Considering the liquefied gas and the high gravity Baume gasoline so long ago produced by refiners of crude petroleum, the Blau gas and Pinstch gas, and the evidence in the records of two widely known patent cases, may it not now be presumed that the widely known Henry H. Rogers, who was associated with Mr. Pratt, and at one time had charge of Pratt & Co.'s refinery, Lloyd I. Redwood (brother of Sir Boverton Redwood), who wrote the authoritative book on the Scotch shale industry, Herman Frasch, all interested in refining petroleum at the same time, and Dr. Herman Blau, could have advised the producers of natural gasoline how to handle their natural gas so that they could produce to their best advantage any product concerning which we today hear so much about?

Automobile Fuels

When automobiles came into use the usual grade of gasoline sold for their use was known as 68-degree to 70-degree gravity Baume. With the constantly increasing number of automobiles, "cracking" by pressure and finally the World War, changed conditions, and lower gravity Baume gasoline resulted for that use.

Previously, however, some automobile manufacturers stated they had found they could obtain greater horsepower and mileage from the use of the lower gravity gasolines—from Borneo and Texas crudes particularly. Later the term "antiknock" became associated with "cracked" gasolines.

Refiners, however, running to far years ago, did considerable cracking, principally at practically atmospheric pressure, to increase the yields of certain grades of refined or burning oil. In redistilling the kerosene distillate, considerable gasoline or naphtha was produced. No one then knew, or, I believe, now knows if that gasoline possessed the antiknock qualities. It is probable, however, that it possessed that quality to a considerable extent, as did the gasoline from Borneo and Texas crude oil hereinbefore referred to.

Vapor Phase Refining

It has been stated that "attention is focusing on vapor phase cracking processes for producing gasolines, in view of the constantly increasing demand for antiknock fuels, as it is possible thereby to produce a material that is equal to or even better than benzol in antiknock qualities."

(Continued on Page 144)

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This insures first-class equipment, built by those who know—, in a specially equipped factory, located on three direct railroads, which makes quick delivery possible on shipments to the Mid-Continent Oil Fields.

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Of Interest to Sales Departments

Domestic Heater Tests by Government Subject of Report

WASHINGTON, D. C., Aug. 27.—"Investigation of oil burners for home heating by the United States Department of Agriculture indicates that they are well suited to the requirements of many home owners on account of their convenience, and ease of heat control if, to obtain these advantages, the prospective purchaser is willing to pay the cost of the change and possibly an increased operating cost," said Arthur H. Senner, Government expert, at the conclusion of his investigation for the department.

To meet the demand of prospective purchasers of this type of heating equipment for reliable information, the Bureau of Public Roads and the Bureau of Home Economics co-operated in testing a number of oil burners of different designs. The results of these tests are now published in bulletin form, and copies may be obtained from the Office of Publications, Department of Agriculture, Washington, D. C.

The tests conducted by the department and its study of many installations indicate the performance that may be expected of the several types of burners, the adaptability of existing heating plants to the use of oil fuel and facts concerning oil-fuel supplies and operating costs.

"There are several types of burners now on the market that afford good combustion of oil fuels. Any burner which will burn the fuel without giving off soot or smoke and does not require a great excess of air may be considered as satisfactory with regard to combustion. The tests show that there is no material difference in the efficiencies of the better makes," said Mr. Senner.

Types of Burners

Great ingenuity has been shown in developing apparatus to burn oil fuels. One general type, the vaporizing type, secures combustion by allowing the oil to drop on a hot plate by which it is vaporized, after which it is mixed with the air in the chamber and burned. The atomizing types have a motor and other mechanical devices for atomizing the oil and mixing it with air before delivery to the combustion chamber.

Oil burners are being applied to all types of heating plants commonly used for home heating. If the present plant, when burning coal, does not give sufficient heat, very probably an oil burner will not improve this condition. In general, warm air heating systems are less suited to oil burner installations than are hot water or steam plants principally for the same reason that coal burning air furnaces are sometimes objectionable; namely, because leaks may develop be-

(Continued on Page 156)

AUSTRALIA'S GASOLINE DEMAND

The Australian Commonwealth Engineering Standards Association has issued a report which points out that 124,000,000 gallons of gasoline are now consumed annually in Australia, of which only about 8,450,000 gallons are produced within the country, and 7,000,000 of that from imported crude. The report then discusses possible substitutes for gasoline and particularly upon the feasibility of establishing the production of alcohol within the country for that purpose.

PLANES TO SPRAY WHEAT

The department of commerce in Manitoba, Canada, has decided upon the use of the Royal Canadian Air Force to spray chemicals on the wheat fields to combat rust. Each plane is expected to treat 6,000 acres a day.

Short Talks on Specifications

By Wm. Ziegenhain

THE SIGNIFICANCE OF VISCOSITY

Specifications on Lubricating Oils

The August 18 issue of The Oil and Gas Journal (page 160), published a description of the apparatus and the procedure used in making a viscosity test on lubricating oils. The significance of the results is of major importance to salesmen in making comparisons with comparative oils and is an aid in recommending the correct grade of oil for a given use.

The viscosity of a lubricating oil is the time expressed in seconds for a given volume of it (60 cubic centimeters) to pass through a standard orifice at a given temperature. In practice, this is a measure of the ability of the oil to maintain a perfect film between two flat, sliding surfaces as the force to bring these together is increased. If the force is sufficient to squeeze out the lubricant and allow the surfaces to rub, the friction developed soon heats the remaining lubricant, decreasing its effective viscosity and the surface is soon scored. The ideal lubricant is one that has sufficient body to maintain a film even under the most severe pressure and yet not be heavier than just necessary to do this. The latter limitation is due to the internal friction within the oil film itself.

In practice the lubricant adheres to each surface and the rubbing is done within the thin film of oil, comparable to two currents of water moving in opposite directions with a narrow line of motionless water between. The internal oil friction is small compared to the friction between two metal surfaces but it is appreciable and increases as the viscosity of the oil increases. This can be described best by noting the difference in force needed to move a paddle around in a barrel of light, low viscosity oil and then in very viscous oil.

With these two limitations, lubricating oil specifications allows only a relatively narrow margin of variance and in general the specifications provide only for a range of 10 seconds. An example of a common range is 220 to 230 viscosity at 100 degrees Fahrenheit for light motor oil.

The setting of an optimum viscosity specification for machines is not a simple matter and is particularly difficult in the case of automobile engine lubrication because the same oil is used to lubricate parts exerting different pressures and there is considerable difference in the temperatures at these points. These factors, coupled with the lowering of the viscosity as crankcase dilution takes place and as the oil becomes contaminated with carbon particles, dust and gums, makes the setting of the viscosity specification for a given motor, a matter of trial.

Because temperature is such a great factor in determining the effective viscosity of an oil, a general idea of the correct viscosity of the lubricant to use may be judged by knowing the average operating temperature of the motor. In the case of air-cooled motors, which ordinarily operate at higher temperatures than water-cooled motors, the lubricant required would have a relatively high viscosity. Since no definite rule can be laid down for all cars, oil companies and automotive engineers have standardized on the production of a relatively few grades of automobile oils as light, medium, heavy, etc., and these are sufficiently broad in range to take care of all needs. With this as a basis, it is an easy matter to designate which grade should be used in a certain make of car.

The field of industrial lubrication includes many different phases effecting the correct choice of a lubricant from the standpoint of its viscosity, particularly, its ability to maintain its viscosity during temperature changes. A thorough understanding of the significance of the viscosity test results is very essential to salesmen in this field.

BURNER MANUFACTURER SAYS COAL IS WASTED

C. U. Williams, president of the Oil-O-Matic Heating Corp., has taken sharp issue with Ralph Arnold, a California geologist, by answering an appeal made by Mr. Arnold to President Coolidge to effect a greater conservation of our oil supplies. Mr. Williams says he is not discrediting a program of conservation in the use of petroleum products, but states that the wrong impression of the supply of crude is gained from the appeal. In part, Mr. Williams points out that "almost as soon as the predictions of an oil shortage were made, the tremendous Seminole field began to reveal itself as the greatest oil producer of all time. This is not an isolated instance of how completely the estimates quickly were upset by the facts. Oil is now found in many other sections not regarded as oil territory when the predictions were made that Mr. Arnold is attempting to revive.

"Economies in the use of other fuels, forced by the lowest prices the oil industry ever has seen, will bring, supposedly, more efficient use of coal, now the most wastefully consumed of all our fuels. We have immense deposits of lignite coal in the Northwest. In Germany this coal is used successfully and economically in the manufacture of oil. Here in America, because of the cheapness of fuel oil and the efficiency with which it is used in correctly designed oil burners, we do not use lignite oil. When our present oil supplies are exhausted, many years after we have died and been forgotten, our descendants will heat their homes with oil burners, using fuel extracted from our coal, now almost valueless in its present form."

SMALLER PERCENTAGE OF INCREASE SHOWN

A continuance of the tendency of refiners of the country to approach more equally the same percentage increase in gasoline production over last year as experienced in gasoline shipments is found by the statistical department of the Western Petroleum Refiners Association. The data shown in the following table are based on the accumulative figures of the Bureau of Mines. From the 20.5 per cent increase in production shown for the first of the month each month has shown a smaller percentage increase, the average for the six months being 12.6 per cent.

Percentage Increase, 1927, Compared With 1926

Period of year—	Refry. output of gaso. Pct.	Gaso. impts. Pct.	Gaso. expts. Pct.	Gaso. ship. from refr's Pct.	Gaso. gaso. at close Pct.	Dom. dem. for gaso. Pct.
1 Month.	20.5	35.4	5.8	1.8	10.9	1.7
2 Months	19.2	18.2	7.5	7.9	12.6	8.2
3 Months	18.3	9.2	6.4	10.5	13.6	11.2
4 Months	16.0	2.4	*0.2	9.7	14.4	11.4
5 Months	13.9	*3.7	*0.5	9.5	13.3	11.0
6 Months	12.6	1.3	1.9	10.8	7.3	12.2

*Percentage decrease.

GERMANY HURRYING BERGIUS' PRODUCTION

Following the announcement of the agreement between the Standard Oil Co. of New Jersey and the German dye trust regarding the use of the Bergius process for the production of synthetic gasoline, plans for its commercial production are under way in Germany. Cheap coal in the form of a fine dust is available there at very low prices, and because of the relatively high prices maintained for gasoline, there is more of an incentive to develop the process there than in this country. The production of the new motor fuel during 1928 is expected to take care of 20 per cent of the total motor fuel used in Germany, and with the lower prices on the new product an increased usage and demand for motor vehicles is expected.

PRICE WARS CONFUSE IN NEW YORK STATE

OIL CITY, Pa., Aug. 27.—Price wars in many cities and towns have made the gasoline price situation in New York State a most confusing one. There is a range of 6 cents in price in various parts of the State and one can obtain this price variation from stations maintained by the same company.

At Corning, N. Y., near the Pennsylvania border, last week a price of 12 cents was in effect and at many other places in southern central New York the quotation was 13 cents. The service stations are making a big play on the "no tax" feature and as one approaches the Pennsylvania line one sees many signs telling the motorist to "fill up and save paying the Pennsylvania tax." At places in northern central New York a price of 19 cents is in effect while at many of the Adirondack resorts 20 cents is being charged.

OPENS SERVICE STATION

CHICAGO, Aug. 27.—The Acme Petroleum Co. of this city has opened a service station in the suburb of Blue Island under the style of the Acme Superior Service Station. It is designed as a combined filling, greasing and auto washing station. The building is attractively designed of pressed brick with slate roof, has six pumps and complete greasing and washing equipment all of the latest type. Three grades of gasoline are supplied to motorists, regular, medium high test and high test. The station is located in the heart of the business district at the corner of Collins Street and Western Avenue. This is the first station operated by the Acme company aside from one at its bulk and storage plant.

REPLACEMENT OF CARS

Forty-seven per cent of the new cars purchased in the United States last year replaced discarded cars, according to a survey made by the Automotive Division of the United States Department of Commerce. For the entire world replacements total about 40 per cent. It is estimated that a total of 1,850,838 cars were junked in the United States during 1926.

OFFICIAL GASOLINE DYED

The United States Government has found a new use for dyes added to the stores of gasoline in the Panama Canal zone, where unauthorized "joy rides" made a heavy draft on the supply. A heavy charge of green dye allows the gasoline to be readily identified, and less "official" gasoline will be used, if the theory proves out.

Sand Storm RAGES

--but Butler Bolted Tanks go up!

On the Eastland Oil Company's lease in the Church-Field's District, 30 miles from McCamey, Texas, you will find this battery of 500-barrel Butler Bolted Tanks. This lease is located on the Upton-Crane County Line.

When a producer asks for speed, he means SPEED! When the Drane-Humphrey Company was asked to put up the bolted tanks shown above, they got right on the job and went right ahead.

The sand storm raged but that made no difference. These tanks went up. That's customary Butler Service.

Butler Tanks go up easily. Erection gangs like to handle them. No wonder! Mammoth machines punch all holes in each Butler sheet. These holes are dependable as to accuracy of size. They are dependable as to accuracy of position. Grief in erection is eliminated.

Here's another thing erection gangs like about Butler Bolted Tanks: Butler Sheets are large. The number of sheets necessary for one tank is reduced. The number of seams on one tank is reduced. Naturally there are fewer leaks because of fewer seams. Also less handling is necessary and speedier erection is secured because of fewer sheets.

In new oil fields and in old oil fields you will find Butler Tanks on the job. Complete information about the advantages of Butler Bolted Tanks can be secured from the dealers listed or by writing us direct.

Any kind of Welded tank made to your specifications.

Protects your men!

The Butler Clean-out Opening is large— measuring 2'x4'! It is not a back breaker. It is convenient for an entire cleaning out of the tank. Because of the size of this opening the work can be done easily, quickly and more safely.

All bolts are removable from the outside!

NEW "Oil Field Tanks" Catalog

Just off the press. Contains information about bolted tanks, steel stairs, valves, flow and storage tanks, welded field tanks, etc. Send for a copy today.

These reliable dealers erect Butler Bolted Tanks and are ready to serve you speedily:

M. & V. Tank Co. at Wichita Falls, Olney, Nocona, Cross Plains, Albany, Cisco, Isom, Pampa and Brownwood, Texas.

Drane-Humphrey Co. at San Angelo, Big Lake and McCamey, Texas, and Carlsbad, New Mexico.

Drane Tank Company at Tulsa, Holdenville, Seminole, Hallett and Shawnee, Oklahoma; Eldorado and Madison, Kansas.

M. A. Trimmer at Blackwell, Oklahoma.

Southern Steel Company at San Antonio and Mirando City, Texas.

Champion Supply Co. at Casper, Wyoming.

Thomas Moran at Oil City, Shreveport and Georgetown, Louisiana.

Continental Supply Co. at Kevin, Montana.

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Does This Ever Happen To You?

Night scene showing drilling rig just after lighting plant has failed.

The above picture shows a drilling rig at night, just after the lighting plant has prematurely gone "off tower."

There are several things the picture does *not* show, such as the tool pusher's language or the expression on the contractor's face, but we leave this to your imagination.

Needless to say, this contractor's next lighting plant will be a MOON, because he will insist on one that has a reputation for being on the job 7 nights per week. And that's MOON.

No matter whether you are using steam or gas-engine for power, there is a specific MOON Lighting Plant to give you reliable service and help you avoid these informal eclipses.

MOON Generators and spare parts are carried in stock by the leading Supply Stores in all fields. Ask them for MOON descriptive bulletins or write us.

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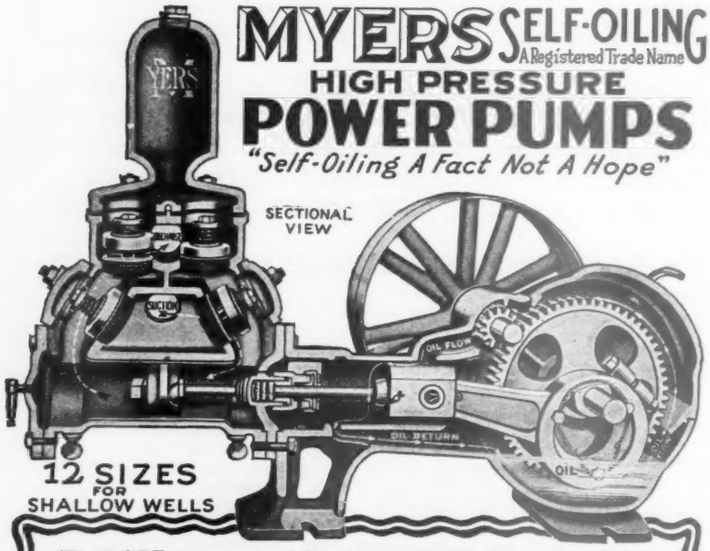

12 SIZES FOR SHALLOW WELLS

MORE water—per dollar invested—with Myers Self-Oiling Power Pumps—the original patented self-oiling line—than is possible with old style, open gear, can oiled, cup lubricated, slow speed power pumps. Others are trimming their water costs—what will this service mean to you?

Myers Self-Oiling Power Pumps for shallow or deep wells are now manufactured in a range of styles and sizes to meet most requirements—they handle cold or hot water, oil and other liquids, and can be operated by motor, gas engine or other power. The number now in use is concrete evidence of their success.

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ASHLAND PUMP AND HAY TOOL WORKS

RUSSIAN CHAIRMAN'S REPLY TO DETERDING

Figures of Russian oil industry recently given by Sir Henri Deterding of the Royal Dutch-Shell Group, to back up his statement that there is a shortage of oil products in Russia, are declared incorrect and entirely misleading by Saul G. Bron, chairman of the Amtorg Trading Corp., who says the quantity of kerosene and lamp oil made available for internal consumption last year was 60 per cent larger than the average for the past three prewar years. Sir Henri is said to have failed to make important correction necessitated by the secession of large territories from Russia. Mr. Bron says:

Sir Henri Deterding's statistical method of consists of comparing the yearly average for three prewar years, when production was stable, with the averages for 1923-4, 1924-5 and 1925-6, during which oil production in the Soviet Union grew by leaps and bounds. This method obviously gives a wrong picture of the industry during the last of these years. The quantity of kerosene and lamp oil made available for internal consumption in 1925-6 was 1,421,499 metric tons, a large increase, and not a decline.

"Production and exports for 1911, 1912 and 1913 were as follows, in tons:

	Kero. and Lamp Oil	Liquid Fuel	Other Products	Total
1911—				
Production	1,558,300	5,028,000	1,543,300	8,129,600
Exports	449,000	85,200	290,900	825,100
Available for internal consumption	1,109,300	4,942,800	1,252,400	7,304,500
1912—				
Production	1,586,300	4,180,000	1,686,400	7,452,700
Exports	396,600	56,300	386,200	839,100
Available for internal consumption	1,189,700	4,123,700	1,300,200	6,613,600
1913—				
Production	1,562,200	4,126,000	1,822,300	7,510,500
Exports	440,000	116,800	390,900	947,700
Available for internal consumption	1,122,200	4,009,200	1,431,400	6,562,800

"The prewar figures refer to the territory of the former Russian Empire. The present Soviet Union population is nearly 20 per cent smaller. The share of Russian kerosene production consumed before the war by the now seceded territories was probably even larger than the 20 per cent, since those territories were of an industrial and urban character. To make possible a fair comparison the prewar figures should be reduced by at least 20 per cent. The resultant figure, showing the average quantity of kerosene and lamp oil available for home use in 1911, 1912 and 1913 is less than 900,000 metric tons.

"Production, exports and the quantity of oil products made available for internal consumption for 1924-5 and 1925-6 are given by the Chief Statistical Administration of the Soviet Union as follows (in tons):

	Kero. and Lamp Oil	Liquid Fuel	Other Products	Total
19245—				
Production	1,427,700	3,068,900	2,496,600	6,993,200
Exports	452,578	399,032	519,430	1,371,040
Available for internal consumption	975,122	2,669,868	1,977,170	5,622,160
1925-6—				
Production	1,860,700	3,754,900	2,628,600	8,244,200
Exports	439,201	358,354	675,656	1,473,211
Available for internal consumption	1,421,499	3,396,546	1,952,944	6,770,989

"This table shows the quantities of kerosene and lamp oil made available for internal consumption during 1924-5 and 1925-6 as 975,122 and 1,421,499 metric tons, respectively. Both figures exceed the prewar average, the latter by as much as 60 per cent.

"While during 1924-5 and 1925-6 production was still below the prewar level, during the present year oil output is running higher than before the war. Therefore, Sir Henri Deterding's concern for the Russian consumer of oil at the present time will be even less appreciated.

"The statement that the Soviet Union would need to import oil from abroad in order to maintain its prewar level of oil consumption, when made in the face of production greater than ever before, of lesser requirements on account of a decrease in population and, incidentally, in the fact of a gain of about 150 per cent in the production of electric current, is obviously misleading.

"Sir Henri Deterding takes great pleasure in mentioning an official Moscow newspaper in support of his claim. The item in the 'Economic Life' states that 'kerosene is not being sold on the Moscow bazaars on account of the fire hazard. However, in local stores it is being sold without any increase in price.' The Moscow Trade Department was urged to make an investigation of the quantity of kerosene on hand and of the compliance with standard prices in village stores.

"It is perfectly obvious that Sir Henri's so-called 'shortage of kerosene' refers to certain local and temporary breaks in the distribution of kerosene in village stores around Moscow, and not to any permanent shortage of kerosene caused by excessive exports.

"In conclusion, whatever Mr. Deterding may say, the Soviet Union is in a position to continue increasing both the exports and the internal consumption of oil products."

OBTAIN SAME PRODUCTS FROM CRUDE AND GASES

(Continued from Page 140)

The terms "liquid" and "vapor" phase separately applied to cracking processes have apparently lately been proven to be much misused, and that "cracking" as today accomplished is practically a combination of both. Pressure, however, is not necessary to "cracking." The application of heat is.

In view of the quoted statement regarding "vapor phase" cracking, may it not be asked if the refiner of petroleum is now about to find it necessary to produce larger amounts of antiknock material for automobile use by other methods of and apparatus for cracking than he has installed, and in doing so become further involved in litigation covering their use through patents?

From all the foregoing, does it not appear that, notwithstanding all that is heard regarding new products, few, if any, which may be commercially produced, can be held to be really new, though to the writer's knowledge several, at least, are patented.

If the products are not new, however, what can be said regarding the processes and apparatus which may be used to produce them? Undoubtedly patents may be found covering both. In fact, several are already known to exist. If they become a matter of litigation, what will be the outcome?

As is well known, our Government finally took a hand in the situation in which a great number of patented processes became involved, and is endeavoring through actions at law to straighten matters out to its own, and doubtless many others, satisfaction. If such actions prove unsuccessful it is possible that congressional action may prove otherwise.

Is it really possible for the eminent leaders in the industry, producers and refiners of crude petroleum, natural gas and gasoline producers, and marketers, to arrive at an understanding covering the production, manufacture and marketing of such products, and the conservation of the petroleum resources of the United States, or must the Government take control?

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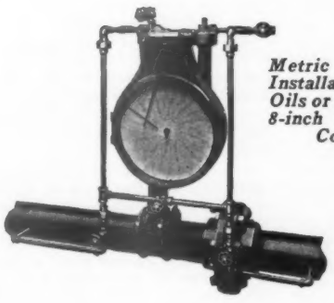
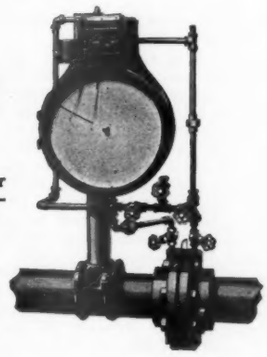


Metric Orifice Meter Installation for Light Oils or Water—2½ and 8-inch Pipe Diameter Connections.



Metric Orifice Meter Installation for Gas—Flange Connections.

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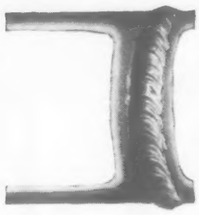

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NEW LOCATIONS IN TEXAS PANHANDLE AND NORTH AND WEST TEXAS FIELDS

TEXAS PANHANDLE FIRST REPORTS

Gray County

Empire Gas & Fuel Co.'s No. 1 B. J. George, 330 feet north and west of SE cor. of SW of Section 151, Block 3, I. & G. N. Survey.

NORTH CENTRAL AND WEST TEXAS FIRST REPORTS

Brown County

Cates Brothers' No. 1 J. W. Snipes, 150 feet north and west of SE cor. of the west 50 acres of east 90 acres of the J. W. Snipes 160-acre tract out of Section 35, T. T. R. R. Survey, A-1,118. Cranfill & Reynolds' No. 2 M. L. Smith, 450 feet south and 150 feet east of NW cor. of M. L. Smith 87.25-acre tract out of Section 3, S. A. & M. G. Survey, A-850. Same company's No. 3 M. L. Smith, 150 feet south and 466 feet east of NW cor. of same 87.25-acre tract out of Section 3, S. A. & M. G. Survey, A-850. Forest Oil Co.'s No. 8 M. L. Smith, 856 feet north and 150 feet west of the SE cor. of their 80-acre lease out of Section 3, S. A. & M. G. Survey, A-850. Humble Oil & Refining Co.'s No. 3 H. Byler, 150 feet south and 1,178 feet west of NE cor. of their 80-acre lease out of Section 43, T. & N. O. Survey, A-914. Same company's No. 13 J. I. Foster, 462 feet south and 527 feet west of the NE cor. of the J. I. Foster 110-acre tract out of the Thomas Benson Survey, No. 783. Same company's No. 18 E. P. & W. K. Kilgore-B, 437 feet north and 523 feet west of the SE cor. of their lease "B" out of the E. P. & W. H. Kilgore 50-acre tract out of the Thomas Benson Survey No. 783. Same company's No. 10 E. P. & W. H. Kilgore-D, 395 feet south and 431 feet west of the NE cor. of their lease "D" out of Section 2, J. Delgado Survey No. 785. Josey & Flinch's No. 1 R. S. Williams, 1,080 feet north and 1,923 feet west of the SE cor. of the Stephen Jones Survey No. 283. Lent Brothers' No. 2 Mrs. A. F. Armstrong, 450 feet north and 150 feet west of the SE cor. of the east 100 acres of the west 260 acres of Section 1, H. & G. N. Survey, A-1,217. Phillips Petroleum Co.'s No. 1 C. Newsome, 150 feet south and east of the NW cor. of the C. Newsome tract out of the G. R. Davis Survey, A-2,106. Roxana Petroleum Corp.'s No. 4 M. L. Smith, 453 feet north and 134 feet east of the SW cor. of their 60-acre lease out of Section 1, S. A. & M. G. Survey, A-849. Same company's No. 5 M. L. Smith, 856 feet north and 150 feet east of same corner of same lease out of Section 1, S. A. & M. G. Survey, A-849. Same company's No. 6 M. L. Smith, 150 feet north and 1,112 feet east of same corner of same lease out of Section 1, S. A. & M. G. Survey, A-849.

Selby Oil & Gas Co.'s No. 12 H. J. Ellis, 450 feet south and 150 feet west of NE cor. of its 130-acre lease out of Section 3, S. A. & M. G. Survey, A-850. E. L. Smith's No. 1 A. A. Moore, 150 feet south and east of NW cor. of the south 50 acres of A. A. Moore tract out of R. F. DeBord Survey, A-2,136. The Texas Company's No. 22 Roy Hickman, 442 feet north and 451 feet west of SE cor. of its 160-acre lease out of the Thomas Benson Survey No. 783. Same company's No. 1 Mrs. M. A. Davis, 150 feet north and west of the SE cor. of the west 40 acres of the J. A. Townsend Survey, A-2,007. Advance Oil Co.'s No. 2 T. J. Hart, 1,500 feet SE of the NW line and 750 feet NE of the SW line of the T. J. Hart 181-acre tract out of the Sarah Ford Survey No. 20. F. W. Kellar's No. 1 S. E. McClatchey, 750 feet south and 150 feet west of the NE cor. of the Stuart Perry Survey No. 83. E. D. Shell's No. 1 W. A. Earp, 150 feet north and 2,130 fet west of the SE cor. of Section 77, Brown County School Land.

Callahan County

L. G. Bradstreet's No. 1 S. P. Swafford, 150 feet south and east of the NW cor. of the east 12.5 acres of the north 25 acres of the S. P. Swafford 50-acre tract out of the G. M. Vigal Survey No. 798, A-523. Jones Oil Syndicate's No. 1 M. R. Pate, 150 feet south and 1,170 feet west of the NE cor. of the M. R. Pate 200-acre tract out of the J. Dyson Survey No. 751. Parks & Gill's No. 1 R. C. Wylie, 150 feet north and west of the SE cor. of the NW of SE of Section 57, Lunatic Asylum Lands. Prairie Oil & Gas Co.'s No. 2 Ed Baum, 150 feet north and west of SE cor. of their 25-acre lease out of the G. M. Vigal Survey No. 798, A-523. Same company's No. 3 Ed Baum, 450 feet north and 150 feet west of the SE cor. of their 25-acre lease out of the G. M. Vigal Survey No. 798, A-523. Same company's No. 1 S. P. Swafford, 150 feet south and west of the NE cor. of the West 12.5 acres of the north 25 acres of the S. P. Swafford 50-acre tract out of the G. M. Vigal Survey No. 798, A-523. Victor H. Martin's No. 1 I. N. Jackson, 750 feet south and west of the NE cor. of the J. O. Young Survey No. 523.

Coleman County

Brooks & Jameson and others' No. 1 L. S. Odom, 150 feet north and east of the SW cor. of Lot 12, A. Murdock Survey No. 738. The Texas Company's No. 1 Mary Green, 150 feet north and east of the SW cor. of the M. Green 200-acre tract out of the Manuel Chaves Survey No. 44. Hoffer Oil Corp.'s No. 2 Mrs. F. B. Cameron, 1,900 feet north and 3,320 feet west of the most southerly SE cor. of the J. A. H. Cleveland Survey No. 495.

Cooke County

R. R. Gray and others' No. 4 Public Park, 150 feet south and west of the NE cor. of Block 59, Town of Muenster. R. R. Gray and others' No. 5 Public Park, center of Block 59, Town of Muenster. Kewanee Oil & Gas Co.'s No. 2 T. Timmis-A, 150 feet south and 200 feet west of the most easterly NE cor. of Section 5, E. T. R. R. Survey, A-363. Lesh & McCall and others' No. 1 Gin Lot, 280 feet north and 510 feet west of the SE cor. of Block 58, Town of Muenster, being 78 feet SW of the NE line and 143 feet SE of the NW line of gin lot. Reed & McMurry and others' No. 1 Farmers Labor Union, 117 feet north and 234 feet west of the SE cor. of Block 54, Town of Muenster. Stroube & Stroube's No. 4 John Koelzer-B, 150 feet south and west of the NE cor. of west 10 acres of the south 20 acres of the east 70 acres of the J. Koelzer 80-acre tract out of Section 13, Thomas Scott Survey, A-900.

Sun Oil Co.'s No. 4 J. Hacker, 70 feet south and 424 feet west of the NE cor. of their 77-acre lease out of Section 13, Thomas Scott Survey, A-900. Cooke County Development Co.'s No. 1 Knights of Columbus, 56 feet south and 234 feet west of the NE cor. of Block 58, Town of Muenster. P. Dalton and others' No. 1 J. Hacker, 1,649 feet north and 451 feet west of the SE cor. of the J. Hacker 117-acre tract out of Section 13, Thomas Scott Survey, A-900, being 21 feet north and 451 feet west of the SE cor. of their lease. Gainesville Oil & Gas Co.'s No. 1 Whaley Elevator Lot, 110 feet north and 290 feet west of SE cor. of Block 58, Town of Muenster, being 150 feet SW of the NE line and 150 feet east of the west line of the Whaley Elevator lot.

Crane County

Gulf Production Co.'s No. 40 J. T. McElroy, 1,442 feet south and 330 feet west of the NE cor. of their lease out of Section 201, Block F, C. C. S. D. & R. G. N. G. R. R. Co. Survey. Same company's No. 41 J. T. McElroy, 1,442 feet south and 330 feet east of the NW cor. of their lease out of Section 200, Block F, C. C. S. D. & R. G. N. G. R. R. Co. Survey. Marland Oil Co.'s No. 1 Union Land Co., 330 feet NW of the SE line and 330 feet SW of the NE line of

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A booklet containing complete information regarding this contest can be secured from The American Society of Mechanical Engineers who will judge the papers. Address them at 29 West 39th St., New York City, or write direct to The Lincoln Electric Company, Cleveland, Ohio.

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Eastland County

Mook-Texas Oil Co.'s No. 5 Minnie Sibley, 200 feet south and east of the NW cor. of the south half of Lot 8, W. Van Norman Survey. Panhandle Refining Co.'s No. 3 L. A. Hightower-S, 150 feet south and 750 feet east of the NW cor. of Lot No. 4, W. Van Norman Survey. Same company's No. 2 E. Webb-S, 150 feet north and 750 feet east of the SW cor. of Lot 3, W. Van Norman Survey. States Oil Corp.'s No. 3 Minnie Sibley, 200 feet north and 750 feet east of the SW cor. of the north half of Lot No. 8, W. Van Norman Survey. McLester Oil Co. and others' No. 4 P. Thorp, 300 feet south and west of the NE cor. of the P. Thorp 65-acre tract out of the J. R. Stubblefield Survey.

Jones County

Cole & Hart's No. 1 Joe Dillard, 300 feet south and east of the NW cor. of Section 2, Block 17, T. P. R. R. Co. Survey.

Jeff Davis County

Humble Oil & Refining Co.'s No. 2 Crescencio Flores, 1,113 feet north and 850 feet east of the SW cor. of Section 34, Block 58, Township 8, T. P. R. R. Survey.

Pecos County

Humble Oil & Refining Co.'s No. 1 M. A. Smith, 275 feet south and 330 feet west of the NE cor. of Section 36, Block 194, G. C. & S. F. R. R. Survey. Simms Oil Co.'s No. 1 M. A. Smith, 275 feet north and 330 feet east of the SW cor. of Section 103, Block 194, G. C. & S. F. R. R. Survey.

Throckmorton County

Hoffer Oil Corp.'s No. 4 J. A. Matthews, at the common corner of Sections 228, 229, 230 and 231, Block 10, E. T. R. R. Survey.

Wichita County

Duncan & White's No. 2 R. Nitschke and others, 450 feet south and 185 feet west of the NE cor. of the east 40 acres of the R. Nitschke and others' 103-acre tract out of Section 2, League 4, Denton County School Land, A-417.

Wilbarger County

Staley-Wynne & Co.'s No. 1 W. T. Waggoner, Section 9, 150 feet south and east of the NW cor. of Section 9, Block 5, H. & T. C. R. R. Survey. Waggoner Refining's Co.'s No. 3 W. T. Waggoner-B, 150 feet north and 750 feet east of the SW cor. of the SW of the NE of Section 46, Block 4, H. & T. C. R. R. Survey.

Winkler County

Atlantic Oil Producing Co.'s No. 1 Ida Hendrick, 2,310 feet south and 1,650 feet west of the NE cor. of Section 44, Block 26, School Land. Independent Oil & Gas Co.'s No. 1 Ida Hendrick-B, 2,310 feet north and 1,650 feet west of the SE cor. of Section 44, Block 26, School Land. Republic Production Co.'s No. 1 Grisham-Hunter-A, 2,310 feet north and 1,650 feet east of the SW cor. of Section 45, Block 26, School Land. Roxana Petroleum Corp.'s No. 1 Grisham-Hunter-A, 2,310 feet south and 1,650 feet east of the NW cor. of Section 45, Block 26, School Land. Texon Oil & Land Co.'s No. 1 Grisham-Hunter-B, 2,310 feet north and 330 feet east of the SW cor. of Section 45, Block 26, School Land.

Young County

E. S. Carey's No. 1 J. E. Boley, 190 feet south and 750 feet east of the NW cor. of Section 194, T. E. & L. Survey.

Corrected Locations

In Brown County—Jim Curtis and Pandem Oil Corp.'s No. 1 S. H. Marr, 1,024 feet north and 150 feet east of SW cor. of S. H. Marr 134-acre tract out of E. L. Betts Survey. Roxana Petroleum Corp.'s No. 1 M. L. Smith, 150 feet north and 168 feet east of the SW cor. of the south 60 acres of the west 120 acres of the east 140 acres of the M. L. Smith 340-acre tract out of Section 1, S. A. & M. G. Survey, A-849. Joe M. Warren Developing Co.'s No. 1 S. O. Looper and others, 150 feet north and 1,100 feet east of the NW cor. of the J. Woodward Survey No. 20, and located in the F. Hunt Survey No. 65, A-396. Advance Oil Co.'s No. 1 T. J. Hart, 150 feet NE of the SW line and 150 feet SE of the NW line of Professor Barr 181-acre tract out of Sarah Ford Survey No. 20.

In Eastland County—The Texas Company's No. 17 L. A. Hightower, 457 feet north and 2,408 feet east of the SW cor. of Lot No. 1, W. Van Norman Survey.

In Hutchinson County—Navajo Oil Co.'s No. 1 E. Cockrell-Dickson, 220 feet east and 330 feet south of the NW cor. of the south half of the NE of Section 3, Block B-3, D. & S. E. Survey.

ACREAGE, NOT PERMITS LIMIT ON ROYALTIES

DENVER, Colo., Aug. 29.—The General Land Office of the Department of the Interior has placed a limit of 640 acres upon the acreage on any one oil structure which a lessee operating under prospecting permits may retain on a royalty basis of 5 per cent following a discovery. The royalty, under this ruling, on holdings of more than 640 acres and up to 2,560 acres will be on the graduated scale of 12½ to 33⅓ per cent, depending on amount of production and gravity of the oil, as provided for in the oil leasing act, and regardless of the number of permits held by the lessee.

The Oil Leasing Act of February 25, 1920, permitted any citizen to file on 2,560 acres of land or less for prospecting purposes, on one oil structure. Only one permit, whether large or small, was allowed to one person. In the event that oil was discovered on the land, the permittee received a lease on one-fourth of the area on which he was required to pay the Government a royalty of only 5 per cent. The graduated scale of 12½ to 33⅓ per cent provided for in the act was required on the remainder of the lessee's holdings. There was a provision in the bill, however, to the effect that if the lessee's permit was for only 160 acres, he should have it all at a 5 per cent royalty.

This act was amended by Congress by the act of April 30, 1926, so that one person might have "any number of permits on a structure so long as the total did not exceed 2,560 acres." It was not long after this amendment was in effect before it was discovered by some applicants for permits that by taking sixteen 160-acre permits on a structure totaling his quota of 2,560 acres, his discovery of oil would secure for him all 16 permits at 5 per cent royalty. Thereby, instead of getting only 640 acres at the low rate of royalty, as Congress intended, he was able to secure his entire holdings at the 5 per cent rate and the Government lost the difference between that and the higher rate.

The department's ruling is contained in an amendment to Circular No. 1,073, approved June 18, 1926, concerning limitations of holdings under Section 27 of the act of February 25, 1920, as amended by the act of April 30, 1926, by adding thereto the following paragraph:

"While under Section 27 as so amended, the limitations as to holdings under the act so governed by the number of acres and not the number of permits which may be held by the same person, association, or corporation, provided the combined area does not exceed the limitations fixed, there appears to have been no purpose to change the area which may be acquired under lease at a royalty of 5 per cent in case of discovery. Accordingly, oil and gas permits will not be issued nor assignments of such permits approved to the same applicant where the result would be to enable such applicant to acquire under Section 14 of the act a right to lease at 5 per cent royalty a larger area than he would be entitled to lease at such royalty had the area of all the permits been embraced in a single permit and discovery made thereon."

The ruling was signed by Thomas H. Howell, acting commissioner of the General Land Office, and approved by E. C. Finney, first assistant secretary.

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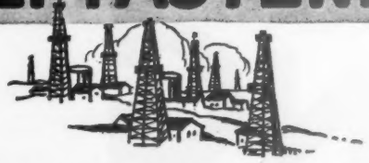

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CRESCENT BELT FASTENER CO., 247 Park Ave., N. Y. C.

CHANGES IN JAPANESE MARKET; INCREASING DEMAND FOR OILS

An increase of nearly 60 per cent in Japanese consumption of petroleum products between 1922 and 1925 is indicated by unofficial statistics, which may be considered fairly reliable, writes Martha M. Taylor, Minerals Section, United States Department of Commerce. The decline of nearly 10 per cent in kerosene consumption was more than offset by increases of 88 per cent in the demand for gasoline, nearly 100 per cent for lubricating oils, and 60 per cent for machine oils. This development in demand was accompanied by a 50 per cent increase in domestic production of refined oils, while at the same time a slight drop occurred in the Japanese output of crude oil.

The decline in crude production continued through 1926, the output for that year being the smallest in 10 years at least. Deeper drilling was tried in 1925, the well shown having been carried down 6,000 feet in the Nishiyama Field. At first this effort showed good results, and production for that year was somewhat higher than in 1923 and 1924. Much heavier expenditures for drilling and deep well operation, however, did not prevent a marked decline in the year following. A number of new wells have been drilled and put into operation in the past two years, but the output obtained from them so far does not appear to have justified the outlay.

Low-Priced Foreign Crude

At the same time that demand for products has increased and the production of crude declined, quotations on crude oil have become lower in the domestic market. This has been the result of the importation of large quantities of low-priced foreign crude, the imported oil being priced below the domestic. Even considering that the imported crude has lost much of its volatile substance, it is still cheaper than the Japanese crude for refining purposes.

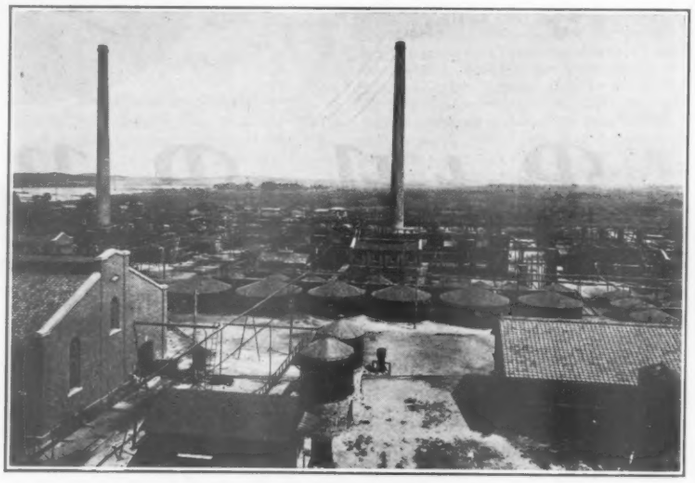
Naturally the growing demand for oil products in Japan has had the effect of intensifying the search for new domestic supplies of crude. The Niigata fields in Echigo Province, a general view of which is given, and the Akita fields in Ugo Province have been so far the sources of most of the Japanese production, although oil indications have been observed in nearly every part of Japan proper. In 1915 and 1916, when the maximum production was recorded, these two fields furnished about 90 per cent while now the supply only about 70 per cent of the total, which has declined from 2,962,672 bbls. in 1916, to 1,760,000 bbls. in 1926. These figures indicate that new sources already have begun to contribute to the total production, and also that such sources are not yet largely prolific and that the output from the two principal fields is steadily declining, since the statistics for the intervening years show that the alternation has been a consistent development.

Producing Territories

The Niigata and Akita Fields are located on the west coast of the main island of Honshu, each representing a petroleum area including several separate fields. The Niitsu, Nishiyama, Higashiyama, and Kubiki Fields are continuous with Niigata, and the Akita district includes the Kurokawa, Toyokawa, Michikawa, and Yuri Fields. The Nagano and Sagara Fields, also on Honshu, are smaller and less prolific; the former is near Niigata, although not contiguous with that area.

Other Japanese territories which have petroleum possibilities are seven small districts on Hokkaido Island, north of Honshu, and three on Formosa, considerably south of Japan proper. No systematic operation and only small and uncertain production are reported from Hokkaido. The Formosan crude is officially reported to contain 85 per cent of kerosene and other light oils, but the recorded production is from wells less than 1,500 feet deep and has never been large. Here, as in Honshu, the peak was reached in 1916, when Formosa furnished 20,000 bbls. of crude.

In addition to these territories, where production is actually taking place, and to those sections where the initial output has diminished so rapidly as to discourage development, there are prospects of petroleum supplies in Sakhalin and in Manchuria.



Refinery of the Japan Oil Co. at Niigata.

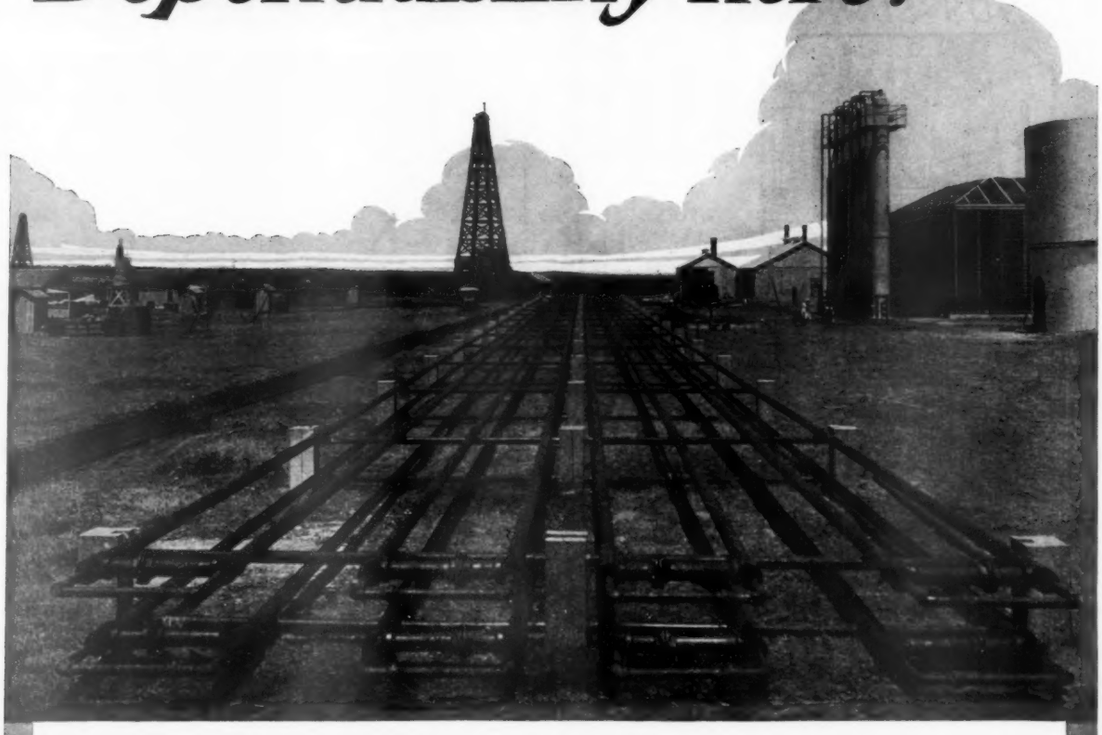
Sakhalin Encouraging

In Sakhalin, Japan has prospected 13,000 acres on the eastern shore, a small fraction of the oil-bearing territory there. The conditions of the contract between Japan and Soviet Russia require the Japanese to choose about 300,000 acres in this section for further prospecting. The land is to be subdivided into areas of 40 to 100 acres, the Japanese to exploit alternating claims, the others remaining in the possession of the Soviet Government.

The results of Japanese operations in Sakhalin so far are considered encouraging. The chief geologist of the Japanese concession has reported a daily production of 110 tons of oil from one of the eight sections. Oha is the only field now producing; 15 wells have been drilled there, of which 9 are productive. The oil basin is said to be comparatively shallow—only about 600 feet from the surface. Experimental drillings are being conducted in the other fields. In many cases, however, it has been found that the strata already have been drained, since they are too nearly vertical. It appears probable, nevertheless, that oil may be located by deeper drilling.

The Manchurian prospects of petroleum production are in the presence of

There is no substitute for Dependability here!



IN this heat exchanger built of "NATIONAL" Pipe, the hot oil runs between the 2-inch and the 4-inch pipe for the purpose of heating cold oil which runs through the 2-inch pipe. Expansion and contraction are factors for consideration here, as well as good tight joints—the result of clean, strong threads. Resistance to corrosion both inside and outside and clean, smooth walls which assist materially in reducing loss by friction, add importance to the selection of the proper pipe for such purposes.

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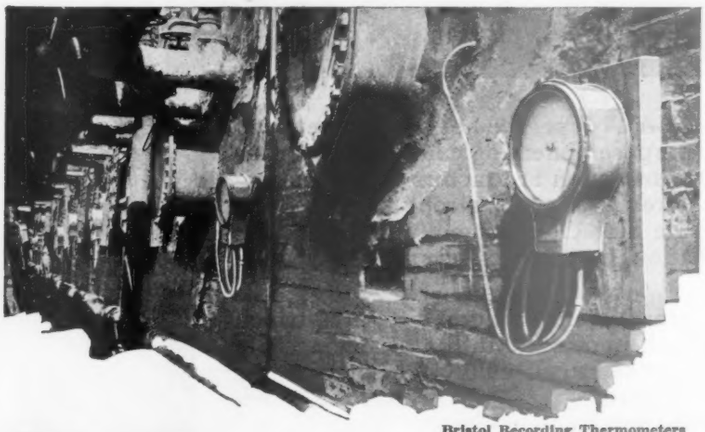

Bristol Recording Thermometers at the plant of the Bolene Refining Co., Enid, Okla.

Watch-dogs of heat!

Still operations run more smoothly when under the watchful eye of Bristol Recording Thermometers. They never sleep.

The ruggedness of these instruments is particularly well attested by the photograph above—showing Bristol instruments designed for indoor mounting, but mounted out-of-doors and doing their work well day after day, in spite of the elements. It is service like this that gets and holds the confidence of refinery engineers.

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The most extensive line of Recording Instruments; including recorders for Pressure, Liquid Level, Temperature, Electricity, Motion, Speed, Humidity, etc.
Ask for Bristol's Catalog.

The Bristol Company Waterbury, Connecticut
FOR 38 YEARS Ask Any Technical Engineer MAKERS OF
BRISTOL'S RECORDING INSTRUMENTS

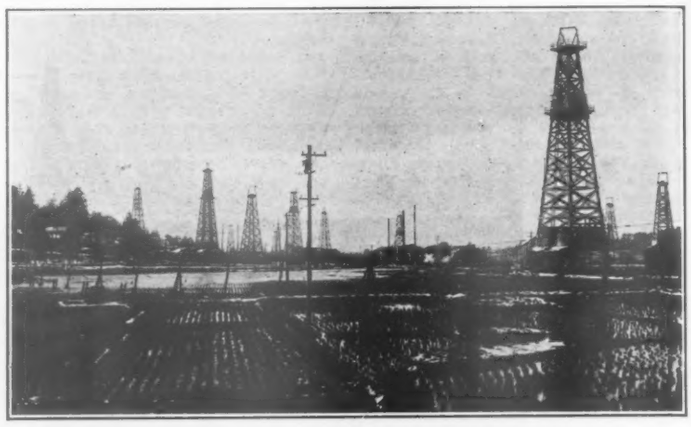
oil shale over the coal seam in the Fushun vicinity. This shale reserve has been estimated at more than 5,000,000,000 tons. The development of the deposit is under the control of the South Manchurian Railway, which installed a distillation plant to handle 40 tons daily in November, 1926, and is contemplating increasing its capacity to about 600,000 tons of shale per year, from which it expects to distill 36,000 long tons of crude oil. The removal of the paraffin content will reduce this amount to about 28,000 tons. Crude paraffin, sulphate of ammonia, coal tar, and other by-products are also to be produced.

Refining Activities Expanding

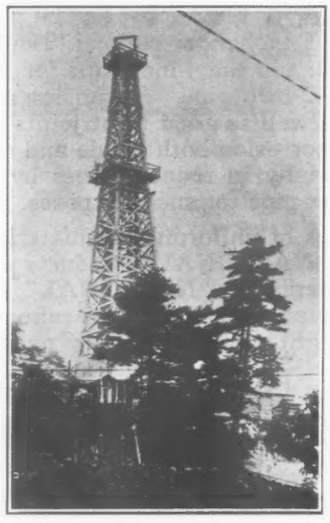
Japan has been backward in petroleum refining until recent years, largely because of the small local demand for products. The rapid growth of the gasoline market has followed the development of automotive traffic, and also the use of marine engines for fishing craft and stationary engines for agricultural work. These changes have strengthened the demand for lubricants also, and with the importation of cheaper crude there has been an increase of about 50 per cent in the Japanese production of refined products during the past four years. The Japan Oil Co., which previously used domestic crude exclusively, recently began to manufacture gasoline from imported crude. This company, which has five large and three small refineries, has installed two units for producing gasoline by the Dubbs process in its Tsurumi plant and one at Niigata. The Kokura Oil Co. has installed one unit, making a total of four plants in Japan producing gasoline by the cracking process. The Asahi Oil Co. is said to be planning the establishment of similar plants.

Increase Gasoline Consumption

The increasing consumption of gasoline has been supplied largely by the growth in imports, which amounted to 2,758,000 gallons in 1918, and to 22,517,603 gallons in 1925. An estimate by one of the operating companies places the 1926 importation at 29,192,626 gallons. Some increase is noted in domestic production, but this occurred mostly in 1925. Domestic production of gasoline was recorded at 7,017,773 gallons in 1918, and 7,601,049 gallons in 1924. In 1925, the total reached 13,146,725 gallons. Production figures for 1926 have not yet been issued. The consumption of lubricants naturally follows the curve of gasoline consumption but kerosene imports have declined gradually during recent years, owing, probably, to the advancing use of electric power and lighting, and also to the substitution of heavy oil for kerosene engines in fishing boats. It is probable, however, that the kerosene market will be maintained to some extent by the gradually developing use of kerosene engines on the farms.



General view of Nichiyama Field in Niigata Prefecture, rice paddies in foreground.



Well drilled to depth of 6,000 feet in Nishiyama Field.

Demand for Fuel Oil

Estimates of the principal producing company in Japan show a production of 8,372,028 gallons of "heavy oil" in the country in 1925, and an importation of 32,400,000 gallons of fuel oil during that year. "Heavy oil" includes fuel oil and residuum. The production shows a slight increase over the output of the years immediately preceding, but is considerably less than is shown for the years prior to 1919. The imports were supplemented to some extent by the importation of 70,741,900 gallons of crude for refining. Most of the fuel oil is used for bunkering the merchant marine and navy, although an increasing amount is required by fishing vessels, as the Japanese Government gives a substantial subsidy to those equipped with Diesel and semi-Diesel engines.

Reconstruction work in Japan has caused a large demand for asphalt, which is well suited to the surfacing of Japanese roads. The chief obstacle to its use is its comparatively high price, nevertheless, its importation continues to grow. Both American and British companies contribute largely to this market, the American companies obtaining their supplies from the United States, Trinidad, and Bermuda. The Japan Oil Co. is the only concern now known to be manufacturing asphalt in Japan. Its present output is reported at 5,000 to 8,000 tons a year. This asphalt is cheaper than the imported product, but is said to be of lower quality and not to meet all the usual specifications for road building in Japan.

Paraffin Wax—Petrolatum

The Japan Oil Co. also owns the only plant for the manufacture of paraffin wax, which produces approximately 480,000 pounds per year. This domestic production covers only a small portion of Japan's requirements, the remainder being supplied from the Netherlands, East Indies, Burma, and the United States. Imports fluctuate considerably but the general tendency in recent years has been upward. Paraffin wax having a melting point below 45 degrees Centigrade, commercially known as scale, is used al-

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Puts off the shot Under all conditions

Being *electrically operated, timed by a sturdy and accurate watch,* and *enclosed in a cast iron shell* tested to 2500 pounds hydraulic pressure, the Zero Hour Electric Bomb functions under any conditions of heat, pressure, or magnetic influence. Since it is set to explode at a pre-determined time and then placed on top of the shot BEFORE casing is lifted or well is cleaned, Zero Hour puts off the shot successfully in extremely cavey holes.

Zero Hour *insures safety of costly wells during shooting*

The price of a Zero Hour Bomb insures you against the cost of shooting accidents which were common with old detonating methods.

Jack squibs, bumper squibs and other uncertain and dangerous detonators used to cause frequent accidents costing thousands of dollars, and often totally ruining an expensive well. But Zero Hour has introduced safety and certainty into oil well shooting by eliminating accidental and premature explosions.

No Zero Hour Bomb has ever exploded before the time for which it was set to explode. It CANNOT explode until the hour hand of the watch reaches the firing pin at the "zero hour." And (when bomb is enclosed in its protective cast iron shell) by no imaginable means can this hour hand be caused to reach the "zero hour" greatly ahead of time.

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most entirely in the local match industry, although a small amount is required for making the cheaper grades of candles. About 90 per cent of the wax having a melting point above 45 degrees is employed in the manufacture of candles, and the insulation of electric wire and cables takes most of the remaining 10 per cent. The consumption of paraffin candles is comparatively large in Japan. Local manufacture supplies this market almost entirely. The candles are used chiefly for religious purposes.

Petrolatum is another petroleum product which has a large demand in Japan, and it is supplied almost entirely by importation. Its principal use is for the manufacture of toilet preparations.

Almost 90 per cent of Japan's petroleum production is furnished by the Japan Oil Co. At its sixty-eighth general meeting held in April, 1927, it declared a substantial dividend from net profits for the preceding six months. This company was organized in 1888, and is responsible for the introduction of the petroleum industry in Japan. Six other operating companies are now listed, most of them located in Akita or Niigata. Only three conduct refineries in addition to field operations.

FUEL RESEARCH REPORTS

The reports of the Fuel Research Board and the Director of Fuel Research of England for 1926 just issued contain a review of the more outstanding events connected with their work in England. A report on low temperature carbonization is included, the production of oil from coal by methods other than carbonization, and the study of metallurgical coke.

GULF COAST SHIPMENTS IN JULY LARGEST OF ANY MONTH THIS YEAR

By P. L. McGreal

HOUSTON, Tex., Aug. 29.—A total of 18,888,059 bbls. of refinery products and crude were shipped from ports in Texas and Louisiana during the month of July. The refinery products aggregated 12,012,783 bbls. and crude 6,875,276 bbls. Compared with June, this is an increase of 480,178 bbls. in the mount of refinery products and a decrease of 135,230 bbls. in the gross crude moved.

The total shipments during July are the largest of any month of the year to date.

The export consignments aggregated 2,731,834 bbls. of refinery products, no crude shipments having been made. June was also a blank as far os crude exports are concerned.

The Yount Lee Oil Co. appears for the first time as a shipper of crude from its Spindletop storage, loading out 350,598 bbls. for coastwise consignment.

By The Texas Company From Port Arthur
Refined
Coastwise 1,684,410
Export 308,879
Total 1,993,289

By Gulf Refining Co. From Port Arthur
Refined
Coastwise 2,801,535
Export 179,365
Total *2,980,900

*In addition the company shipped coastwise 8,936 tons of petroleum coke.

By Magnolia Pet. Co. From Beaumont
Refined
Coastwise *1,458,691

*Includes 202,199 bbls. of manufactured fuel oil. Company makes no distinction between coastwise and export shipments.

Crude
Coastwise 1,143,023

By Yount Lee Oil Co. From Beaumont
Crude
Coastwise 350,598

By Atlantic Oil Prod. Co. From Atreco
Refined
Coastwise 109,343
Crude
Coastwise 291,691

By Atlantic Oil Prod. Co. From Beaumont
Crude
Coastwise 452,489

By Pure Oil Co. From Smith's Bluff
Refined
Coastwise 439,255
Crude
Coastwise 814,482

By Humble Oil & Refining Co. From Neches Terminal (Orange)
Crude
Coastwise 58,930

By The Sun Oil Co. From Sabine Pass
Crude
Coastwise 636,877

By Humble Oil & Refining Co. From Texas City
Crude
Coastwise 1,656,979

By Humble Oil & Ref. Co. From Ingleside
Crude
Coastwise 43,472

By Humble Oil & Ref. Co. From Baytown (Refinery)
Refined
Coastwise 926,516
Export 794,012
Total 1,720,528
Crude
Coastwise 817,243

By Galena Signal Oil Co. From Houston (Galena)
Refined
Coastwise 112,000
Export 103,000
Total 215,000

By Deep Water Oil Refineries From Houston
Refined
Export 40,000

By Keen & Woolf Oil Co. From Houston
Refined
Coastwise 60,000

By Sinclair Oil Refining Co. From Houston (Sinco)
Refined
Coastwise 420,369
Export 142,953
Total 563,322
Crude
Coastwise 440,623

By Crown Central Petroleum Corp. From Houston (Pasadena)
Crude
Coastwise *124,038

*17,849 bbls. of total shipped by Atlantic Oil Producing Co.

By Standard Oil Co. of Louisiana From Baton Rouge
Refined
Coastwise 1,259,830
Export 1,163,625
Total 2,423,455
Crude
Coastwise 44,831

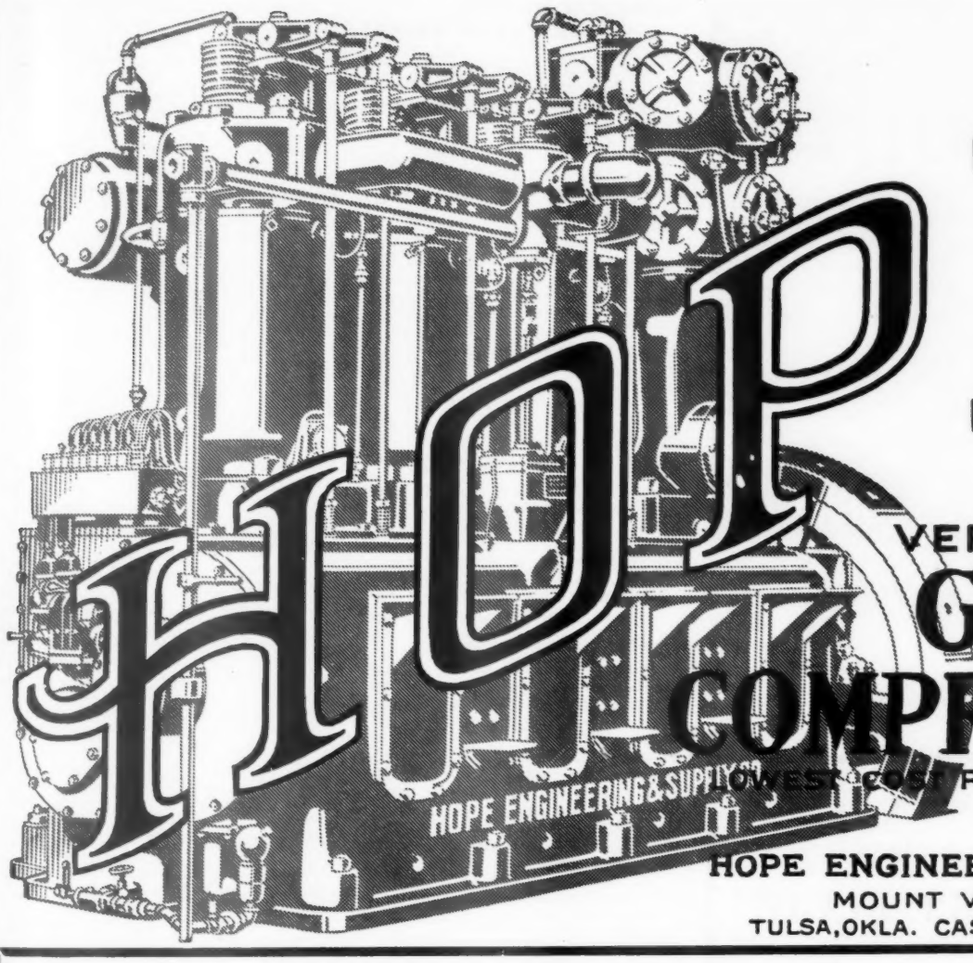
SUMMARY

Shipments by water of refined and crude from Gulf ports during month of July, 1927.

Company and Port—	Refined	Crude	Total
The Texas Company, Port Arthur	1,993,289	.....	1,993,289
Gulf Refining Co., Port Arthur	2,980,900	.....	2,980,900
Magnolia Petroleum Co., Beaumont	1,458,691	1,143,023	2,601,714
Yount Lee Oil Co., Beaumont	.....	350,598	350,598
Atlantic Oil Producing Co., Beaumont	.....	452,489	452,489
Atlantic Oil Producing Co., Atreco	109,343	291,691	401,034
Pure Oil Co., Smith's Bluff	439,255	814,482	1,253,737
Humble Oil & Refining Co., Neches Terminal	.....	58,930	58,930
Sun Oil Co., Sabine Pass	.....	636,877	636,877
Humble Oil & Refining Co., Texas City	.....	1,656,979	1,656,979
Humble Oil & Refining Co., Ingleside	.....	43,472	43,472
Humble Oil & Refining Co., Baytown	1,720,528	817,243	2,537,771
Galena Signal Oil Co., Houston	215,000	.....	215,000
Deepwater Refining Co., Houston	40,000	.....	40,000
Keen & Woolf Co., Houston	60,000	.....	60,000
Sinclair Oil Refining Co., Houston	563,322	440,623	1,003,945
Crown Central, Houston	.....	124,038	124,038
Standard Oil Co. of Louisiana, Baton Rouge	2,432,455	44,831	2,477,286
Totals for July	12,012,783	6,875,276	18,888,059
Total for June	11,532,605	7,010,506	18,543,111
Difference	480,178	135,230	344,948

EXPORTS

The Texas Company, Port Arthur	308,879		308,879
Gulf Refining Co., Port Arthur	179,365		179,365
Humble Oil & Refining Co., Baytown	794,012		794,012
Galena-Signal, Houston	103,000		103,000
Deepwater Refining Co., Houston	40,000		40,000
Sinclair Oil Refining Co., Houston	142,953		142,953
Standard Oil Co. of Louisiana, Baton Rouge	1,163,625		1,163,625
Totals for July	2,731,834		2,731,834
Totals for June	2,436,180		2,436,180
Increase	295,654		295,654



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The G-R Mineral Seal Oil Heat Exchanger

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STRICTLY countercurrent flow of lean and rich oils, exceptionally compact, twin arrangement, ease of inspection, cleaning and transportation, and elimination of expansion strains are some of the outstanding features of the G-R Mineral Seal Oil Heat Exchanger.
It will pay you to investigate the construction and many special advantages of these exchangers. They are concisely described in leaflet which will be sent on request.

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DOMESTIC HEATER SUBJECT OF REPORT

(Continued from Page 142)

tween the firepot and the air passages. These leaks permit gases to permeate the house.

A condition of this kind is somewhat aggravated where oil fuel is used, the reasons being the greater intensity of the flame and the alternate heating and cooling as the burner is turned on and off. There are, however, warm air furnaces of such design and construction that the likelihood of gas leakage is practically eliminated; and many such installations are giving entirely satisfactory service.

"The matter of safety is of interest to every home owner who desires to heat his house with oil fuel. The Underwriters' Laboratories have tested and listed many of the burners now manufactured as complying with certain standards of minimum hazard. Burners that have been so tested bear a mark of indicating the fact. The absence of such marking, however, does not necessarily mean they do not comply with the requirements of the Underwriters' Laboratories.

There are on the market today a number of burners which have not been submitted for test or which are now on the waiting list," says Mr. Senner's report.

Grades of Fuel

Fuel for oil burners is derived from crude oil after other products have been extracted. This fuel is sold in various grades, and the proper grade for use in any case is determined by the type of burner in which it is to be used. The department tests of fuel economy show that the heavier fuel oils will not be consumed quite as rapidly as the lighter oils. "High-grade fuel may be 25 per cent higher in price than the low-grade product and in such case the saving in cost of fuel by burning the low-grade oil might be as high as 30 per cent."

Mr. Senner's tests enable him to speak with authority to those people who are contemplating the purchase of oil-heating equipment. For the guidance of purchasers, he says, "In selecting a burner it is well to obtain in advance all the information possible, keeping in mind experiences of other purchasers. Do not seek the 'best' burner but rather one that is handled by a reliable organization which employs capable men to service their product. It is safe to conclude that such an organization will handle at least a reasonably good product."

JAMES A. VEASEY ON LEGISLATIVE CONTROL

(Continued from Page 107)

carbon black to be wasteful, and prohibiting its employment for that purpose. This brings into view other State enactments designed to prohibit, or substantially to restrict, the use of natural gas for manufacturing carbon black. In Arkansas, the use of gas for this purpose is absolutely prohibited. In Wyoming, the use of natural gas in this respect is conditioned upon two things: First, the act applies only where the supply is within 10 miles of an incorporated municipality or industrial plant. Secondly, when the supply is so located, the use of the gas for carbon black manufacture is prohibited unless the heat content therein is fully and actually utilized for further manufacturing and domestic purposes. Montana enacted the same statute, eliminating therefrom, however, the 10-mile limitation of the Wyoming statute. In effect, the Louisiana and Texas statutes, the latter reference including the regulations of the Texas Railroad Commission, subordinate the use of gas for carbon black manufacture to its use for other industrial and domestic purposes. The constitutionality of the Wyoming statute was sustained by the Supreme Court of the United States in Walls vs. Midland Carbon Co., while in Gas Products Co. vs. Rankin, it was held that the Montana statute violated the due process clause of the Montana Constitution.

Allowing for the ultimate reach of this doctrine, the question involved in these statutes and holdings should be a matter of grave concern to the industry, not in relation to the restriction upon the use of gas in the manufacture of carbon black merely, but because the tendency, if not the positive effect thereof, is to require the preferential use of an ordinary article of trade and commerce. Whatever uncertainty there may be in the decisions touching the ownership of natural gas underground, there is none whatever when the gas is actually reduced to possession. Then, it is property, clothed with all of the attributes of that concept, and entitled to the same constitutional protection as any other species of property. The penetrating and all-controlling quality of property is its use. The use of property is just as definitely within the protection of the Fifth and Fourteenth Amendments as is the thing that is held in ownership. Times without number it has been so held by the Supreme Court of the United States. The only limitation of the doctrine is that the use to which the thing is applied shall be legitimate. The employment of natural gas in the manufacture of carbon black is a lawful use. If a state may prohibit the use of natural gas for the manufacture of carbon black, it would have the same power to deny its employment in smelters, or any other legitimate enterprise. If statutory preferential uses may be established in relation to natural gas, the principle would extend to oil products. If so, logic requires that similar restrictions might be imposed on all other species of property and, hence, our cherished conceptions of the sanctity of the property guaranties of the Federal and State Constitutions would disappear. In truth, the police power of the states would be without restraint. The only decision other than Gas Products Co. vs. Rankin, which squarely condemns the doctrine of preferential use is Springfield vs. Gas Co. Here was involved an ordinance of the city of Springfield, Ohio, limiting the use of natural gas to fuel, heat and power, and prohibiting its use for illuminating purposes. On the principle, that the owner of property may utilize it as he chooses provided the use is not unlawful or injurious, the court held that the ordinance amounted to a taking of property without due process and was, therefore, void. The fallacy in these holdings lies in the fact that no distinction is observed between the field of police power and that of eminent domain. No pretense is made that these decisions are based upon the correlative situation of the surface owners. The statutes were enacted and upheld on the principle of public welfare. In such circumstances, a taking with compensation under the power of eminent domain would constitute the only kind of constitutional legislation. This is the express holding of the Supreme Court of the United States in the Pennsylvania Coal case already cited.

Nor is the opinion of Mr. Justice McKenna in the Walls case impressive. The eminent jurist based his holdings on two decisions: Ohio Oil Co. vs. Indiana and Lindsley vs. Natural Carbonic Gas Co. Chief Justice White wrote the opinion in the Indiana case, and Mr. Justice Van Devanter in the Lindsley case. If anyone had a definite appreciation of the scope of these two decisions, it was these two justices. Both of them dissented in the Walls case. Lately, it must be remembered that the Supreme Court of Montana flatly refused to follow the doctrine of the Walls case. Here, a carbon black statute was held to violate the due process clause of the Montana Constitution. Since the constitutionality of a State Act under the State Constitution is for the decision of the highest court of the particular jurisdiction, this might be the attitude of any other State Supreme Court upon the same question, excepting the Supreme Court of Oklahoma, which has followed the Walls case. Accordingly, the holding in the latter case cannot be regarded as a finality. At any rate, the statute considered in the Walls case did not absolutely prohibit the use of natural gas in the manufacture of carbon black. The statute represented a restriction upon, or a regulation of, use rather than a prohibition. It might be

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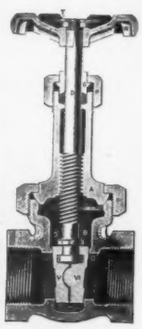

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distinguished from a case involving a statute directly commanding a preferential use. Regardless of these considerations, the Petroleum Industry, on both economic and constitutional grounds, should never lend its support to a legislative enactment establishing a preferential use for its products. To act otherwise would be to sanction paternalism, submit to discrimination, and approve a legislative tendency which, if not arrested, may lead to the utter destruction of the property guaranties of the Federal and State Constitutions.

Relating to Crude Oil

7. One provision of the Oklahoma Oil Conservation Statute merits special treatment. It is here provided that the taking of crude oil in the State of Oklahoma, at a time when there is no market demand therefor at the well, at a price equivalent to the actual value of the crude, to be determined from the selling price of refinery products throughout the United States, the cost of transporting, refining and marketing to be taken into account shall be prohibited. The Corporation Commission is empowered to make the necessary investigation to determine these relative values and, in effect, to promulgate orders fixing the price for which crude oil might be sold from time to time. Clearly, this is a price-fixing statute. The State of Oklahoma has never attempted to enforce the enactment, probably for the reason that plainly it is unconstitutional. The validity of the provision may be looked into briefly. To begin with, the business of producing and selling oil is not clothed with public interest. In the Tyson case, cited in the note, Mr. Justice Sutherland said: "A business is not affected with public interest merely because it is large, or because the public is warranted in having a feeling of concern in respect of its maintenance. Nor is the interest meant such as arises from the mere fact that the public derives benefit, accommodation, ease, or enjoyment from the existence or operation of the business." The rule is settled that a price fixing statute will be upheld only when it deals with a business affected with public interest. The cases cited in the note are the latest utterances of the Supreme Court of the United States upon the subject. Under the authorities cited, and numerous others that might be referred to, the price-fixing provision of the Oklahoma conservation law is clearly unconstitutional.

Equalizing Situation

8. The last type of conservation statutes which commands attention is that designed to equalize the situation of operators in the same pool during periods of overproduction. A familiar example is the enactment which forbids a gas lessee from producing more than his proportion of the gas which may be marketed from a particular pool when there is no market for all of the production of the pool.

Oklahoma and Louisiana are the only States which have adopted analogous acts in relation to oil. In Oklahoma, the production of crude oil in such manner and under such conditions as to constitute waste is prohibited. The statute then proceeds to define the term "waste" for the purposes of the act, and the definition includes this provision: "Waste incident to the production of crude oil in excess of transportation or marketing facilities, or reasonable market demands." Then follows a requirement to the effect that whenever the full production of a common source of supply can be obtained only under conditions constituting waste, each operator may produce his proportion only of such production of the field as can be produced without waste. In the actual application of the statute, the following factors are involved: First, the market outlet of the pool would have to be determined. Market outlet would doubtless include the purchasing capacity of concerns owning or affiliated with pipe line companies and the purchasing capacity represented by tank car shipments, and, under the strict terms of the act, probably exclude the storage of crude in the field. With the maximum marketing outlet thus ascertained, each operator would be permitted to produce such proportion of that figure as his potential or actual production would bear to the total potential or actual production of the pool. While the provisions of the Louisiana statute relating to this subject are in terms quite dissimilar, for the purposes of this paper we will regard them as having the same effect.

The constitutionality of these measures never has been brought into question in any court. Furthermore, it must be evident from a mere reading of the acts that an inquiry into their validity will present many serious and difficult questions. At the outset, we must differentiate between the gas and oil statutes. If the dictum of the Ohio Oil Co. case, touching the disproportionate taking of natural gas is to culminate in an absolute rule, it seems inevitably to follow that a statute of this sort relating to natural gas might be upheld. But, even here the question is shrouded in uncertainty. The notion of a proportional taking of natural gas conflicts so sharply with the well-established doctrine that a gas lessee may appropriate as his property all the gas that comes into his wells from whatever source derived, where he is producing without waste, has a legitimate use for the gas, and his operations are not injuring the producing formations, that it is difficult to believe that the principle of proportional taking ever will be applied even to this substance. However this may be, all that we intend to concede here is that there is stronger reason for applying the rule of proportional taking to natural gas than to oil because of the free moving and reservoir-depleting qualities of the former mineral. If, eventually, the principle of proportional taking of gas is laid down by the courts, then a gas conservation statute of the character under discussion would evidence a valid exercise of the police power. It could be upheld on either one of the two grounds advanced here; namely, the correlative situation of the lessees in the particular pool, and to promote public welfare.

Turning to the oil statutes, we are so firmly convinced that the rule of proportional taking never will be extended to that substance, that we must seek their validity upon other grounds. In pursuing the subject, the property rights of an oil lessee must be brought into contrast with the restraint imposed by these acts. First of all, we must set aside considerations involving the physical waste of oil, and acts of an operator producing injury to the saturated formations. Subject to these two qualifications only, the operator may produce his wells to capacity. Putting the matter concretely, the following situation frequently obtains. The production of common source of supply, adopting the language of the statute, will be in excess of the actual market outlet. At the same time, one producer or several producers, more forehanded than their neighbors, have provided storage sufficient to take care of all of their production in the pool; or, some of the operators may have the capital to provide storage and do so, while their less fortunate neighbors may not be in position to conduct their business in this manner. It is at this point that the statute impinges. Would a police measure, preventing an operator from producing his wells to capacity when he could do so without committing actual waste, and without injuring the producing formations, and when he has ample storage facilities to care for all his production, or capital so to do, stand the test of constitutionality? The question includes any other means available to the operator which might enable him to handle all of his production. On fundamental grounds, the writer does not believe that the police power goes that far, yet we are faced by these practical considerations: (a) The equity of a statute of this sort is impressive. (b) It would have to be arbitrary, unreasonable, and oppressive in its operation before it would be overturned. (c) With public opinion behind it in the local State, it would be the disposition of the State court to uphold it. (d) Should a case assailing the validity of the statute reach the Supreme Court of the United States, that court would be inclined to defer to the judgment of the local legislature in passing, and to the judgment of the State court in upholding

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the act. In these circumstances, no one could predict with any degree of assurance what the ultimate verdict respecting the constitutionality of these statutes might be. One other thought intrudes here: These statutes apply during periods of overproduction only. They are temporary in their operation, and, for these reasons, their constitutionality might be upheld under the authority of the emergency cases.

Holdings of Supreme Court

9. In order that the application of two specific holdings of the Supreme Court of the United States may not be overlooked, they are given special treatment here. To this point, it has been conceded that the State, for the promotion of the general welfare, as distinguished from the regulation of the correlative rights of operators in the same pool, may prevent the actual waste of natural gas without utilization, possibly take the same measures to prevent the waste of oil without utilization, and in respect of both oil and gas prohibit acts which may injure the producing formations. This suggests an inquiry into whether or not a State may enact other conservation laws to preserve its oil and gas resources for use of the people under the general welfare clause. In West vs. Kansas Natural Gas Co. and Pennsylvania vs. West Virginia, the supreme importance of the gas supply of Oklahoma and West Virginia to the people of those States, respectively, specifically was alleged. In addition, it was pointed out that the practices of the defendants were rapidly depleting such resources. The State statute before the court in each instance was designed to preserve the gas supply of the particular State for the use of the people thereof, the act in terms, or in effect, prohibiting its transmission beyond the State boundaries. In each case, it was strongly argued that the act involved was a proper exercise of the police power to conserve a wasting natural resource, already near depletion, for the use of the people of the State. In the West case, it was held that the Oklahoma statute violated both the due process and the commerce clauses of the Federal Constitution. In the Pennsylvania case, it was held that the statute violated the commerce clause. In either event, the result was precisely the same. These decisions, to say the least, cast a strong doubt upon the power of a state so to regulate the business of producing gas and, therefore, the business of producing oil, as to preserve these resources for the benefit of the people of the state. In other words, the matter comes to this: Police measures, designed to prevent waste, or to protect the producing formations, may be enacted either upon the principle of correlative rights, or in the interest of the public welfare; but conservation statutes of broader scope must have their foundation in the principle of correlative rights alone.

Proposed Conservation Statutes

A number of the State Conservation statutes heretofore examined are decidedly constructive in their tendency; others are either too complicated or impractical. No existing statute meets the real problem of overproduction. As the industry now understands this matter, overproduction is the result chiefly of two related practices: First, competitive drilling, and, Secondly, its concomitant, the failure fully to conserve gas pressure and volume—not only for the purpose of enlarging the ultimate recovery but to bring about a more uniform rate of recovery, which latter circumstance in itself would tend to mitigate the evil of overproduction. In the debates in the industry upon the subject, two measures for relief have been proposed; The substitution of the unit method of developing and operating an oil pool for the present practice of competitive drilling; and the conservation of the pressure and volume of the gas in an oil producing formation, whether dissolved in the oil or existing separately, to bring about the two reforms suggested above. If eventually legislation touching these matters is to be considered, the validity of statutes designed to establish the two practices challenges attention.

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through wells located on another, the fact still remains that the operator completing his wells first obtains a decided advantage in production over his neighbors in the same pool. Primarily, this arises from his more complete utilization of the pressure and volume of the gas in the oil sand. Hence, it is that when an oil pool is discovered there is a scramble among the operators for the production, the drilling and producing activities of one operator largely controlling that of all other operators in the pool. In these circumstances, no opportunity is afforded to equalize supply and demand. On the other hand, if one person owned all the properties in the particular pool, he could accommodate his business to the existing or potential market for his production. There is now a strong sentiment in the industry to bring about the development and operation of oil pools as a unit. Basically, the idea involves the following factors: (a) A scientific spacing of all wells; (b) The speeding up or retarding of drilling operations, depending upon the margin between supply and demand; (c) Possibly, the curtailment of existing production to accomplish the same purpose; (d) The complete utilization of gas pressure and volume which in itself tends to stabilize production, and which in the long run would result in a larger oil recovery. Manifestly, if this method of operation is to be adopted, it must be by agreement among the operators concerned, or by coercive legislation. In respect of the latter responsibility, two proposals are made: First, a legislative enactment which would empower a majority of the operators in the pool to devise and enforce a uniform plan for the development and operation of the same; Secondly, a legislative enactment conferring upon the conservation agency of the State the power to devise and enforce the unit method of operation.

Would statutes of this character stand the test of constitutionality? The first question apparently finds its answer in Eubank vs. Richmond. Here, it was charged that a set-back ordinance of the city of Richmond, Va., violated the Fourteenth Amendment. The ordinance provided that whenever the owners of two-thirds of the property abutting on any street should, in writing, request the committee on streets, an official body, to establish a building line to which all buildings erected in the future should conform, the committee should put the restriction in effect. Mr. Justice McKenna, speaking for the court, and holding the statute unconstitutional, said: "The action of the committee is determined by two-thirds of the property owners. In other words, part of the property owners fronting on the block determine the extent of use that other owners shall make of their lots, and against the restriction they are impotent. This we emphasize. One set of owners determines not only the extent of use but the kind of use which another set of owners may make of their property." On these grounds, the ordinance was condemned. In Gorieb vs. Fox, a setback ordinance was upheld as constitutional and the case distinguished from Eubank vs. Richmond on the ground that the power to prescribe the exact restrictions of the ordinance was reposed in an official body and not in a majority of the property owners. The effect of these decisions is this: Even conceding for the sake of argument that a state might have the power to enforce the unit plan of operation, it could not delegate the authority so do to a majority of the operators interested in the particular pool. The action of the majority would constitute a taking of property without due process. On the major proposition, little need be said. An oil operator has the right to drill his wells whenever he will, locate them anywhere on the lease premises, and produce them to capacity. In the language of Mr. Justice Holmes, a statute which would make it commercially impractical for him to do these things would clearly violate the Fourteenth Amendment. Such precisely would be the effect of any act designed to put in force the unit plan of developing and operating oil properties.

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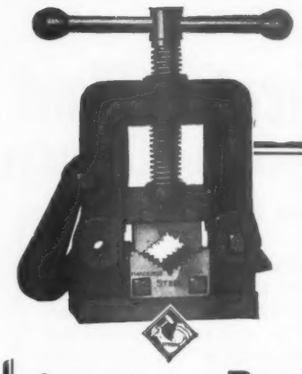

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business which approaches this one in magnitude. A scientific and complete use of the pressure and volume of the gas found in an oil sand, and, particularly, the gas developed in the oil, will result in two things: First, oil will be produced at a more uniform rate which will tend to stabilize production; Secondly, the ultimate recovery will be enlarged. It is a striking and lamentable fact that the oil industry is just beginning fully to appreciate the high function which gas, especially dissolved gas, performs in the production of oil. The impressive utility of gas in this regard goes to the very heart of the correlative rights of operators interested in a particular pool. If "A" wastes gas found in an oil sand, he not only reduces the quantity of oil which ultimately he will recover but he visits the same consequences upon his neighbor. Clearly, then, a police statute designed to prevent the actual dissipation of gas coming from an oil formation would be constitutional under the familiar rule of neighborly conduct. But here intrudes a difficult question: What if "A" has a legitimate use for the gas inhabiting the oil formation? What if he wishes to use it for the manufacture of casinghead gasoline, carbon black, or any other valid purpose? May he then produce all of the gas which is accessible to him although by so doing he deprives his fellow operators of an agency which would enlarge their oil production? The question in its full significance has never received the consideration of the courts. While the writer admits that the point is a debatable one, the fact still remains that there is such an intimate relationship between natural gas and oil lying in a state of nature that a court very properly might regard the two substances as one. Would not this conclusion deprive natural gas found in an oil sand of its status as a distinct species of property? If so, a police measure, having as its purpose the requirement that gas found in an oil sand should be utilized to the fullest possible extent to produce oil, might be upheld. To say the least, the economic importance of this proposal is so supreme that lawyers interested in the subject should give this particular question the closest study. If the industry, through co-operative effort, shall decline to conserve gas pressure and volume in order to mitigate the evils of overproduction, and to promote the public welfare by enlarging the recovery of oil, compulsory legislation designed to accomplish that purpose should be resorted to if it can be upheld upon any conceivable theory of constitutional law.

Conclusion

The unit plan of development and the conservation of gas for the purpose of producing oil are the vital problems of the petroleum industry. They should be of equal interest and concern to the public. Competitive drilling brings about overproduction, and overproduction impairs the capacity of the petroleum industry to serve the public. The failure completely to utilize the natural gas found in oil formations not only contributes to overproduction but reduces the ultimate oil recovery. Here, again, the solicitude of the public definitely should be enlisted. Both of these problems must be met. Manifestly, it is preferable for the industry to meet them independently of statutory coercion. The oil business is too individualistic, too technical, to be controlled by statute. Nevertheless, the leaders of the industry should be impressed with the fact that, after all their supreme duty is to the American public and the American Government. If the industry, on its own responsibility and in its own way, shall fail to put its house in order, particularly in relation to the two basic problems which now confront it, there will be an insistent—perhaps an irresistible—demand for legislative control. If this unhappy moment ever shall come, the all-absorbing question will be the degree in which the Nation or the States may regulate the drilling and operation of oil wells. Hence, we conclude, as we began, the propositions advanced here are suggestive only. They should receive the careful and studious consideration of every member of our profession interested in the business of producing oil.

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Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS

Pipe Line Statement for June

Company—	Month	Daily Av.
*Prairie P. L. Co.	4,440,000	148,000
Gulf P. L. Co.	1,330,590	44,353
Texas P. L. Co.	853,625	28,454
Magnolia Pet. Co.	1,716,829	57,228
Empire P. L. Co.	1,826,981	60,899
Cosden P. L. Co.	971,624	32,387
Sinclair P. L. Co.	2,415,090	80,503
*Other lines	12,720,000	424,000
Total June	26,264,739	875,824
Total May	26,935,013	868,870
Difference	670,274	6,954

Shipments

*Prairie P. L. Co.	5,505,552	183,518
Gulf P. L. Co.	1,122,928	37,431
Texas P. L. Co.	725,638	24,188
Magnolia Pet. Co.	1,206,159	40,205
Empire P. L. Co.	1,253,736	41,791
Cosden P. L. Co.	826,072	27,536
‡Sinclair P. L. Co.	2,633,047	87,768
*Other lines	12,000,000	400,000
Total June	25,273,132	842,437
Total May	25,887,274	835,073
Difference	614,142	7,364

Stocks

*Prairie O. & G. Co.	30,300,000
*Prairie P. L. Co.	2,000,000
Gypsy Oil Co. & Gulf P. L. Co.	8,761,873
The Texas Company	4,723,332
Magnolia Pet. Co.	5,611,652
Empire P. L. Co.	3,277,315
Cosden P. L. Co.	2,915,742
*Sinclair Crude Oil Pur. Co.	19,600,000
Carter Oil Co.	15,528,629
*Other lines	10,650,000
Total June	103,378,545
Total May	101,197,943
Difference	2,180,602

*Estimated. ‡Prairie Pipe Line shipments include Texas crude and Sinclair Pipe Line shipments include Wyoming, Texas crude. Note—Stocks do not include approximately 4,000,000 bbls. of crude oil held in storage on private tank farms and leases and approximately 1,700,000 bbls. of Texas Panhandle crude in storage in Oklahoma and Kansas.

EASTERN PIPE LINES

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for June and July:

	June, '27	July, '27
Nat. Transit	157,315.01	155,782.70
S. W. Pa. P. L.	93,809.85	85,622.93
Eureka P. L.	390,791.12	378,082.34
Buckeye P. L. (Macksburg)	344,562.31	319,986.23
Buckeye P. L. (Cleve)	11,529.52	11,219.55
Buckeye P. L. (Lima, etc.)	139,035.28	126,613.83
Indiana P. L.	11,406.99	9,105.05
Cum'land P. L.	250,266.24	261,877.90
N. Y. Transit	24,809.81	22,074.99
Tidewater P. L.	189,396.14	185,203.73
Pure Oil	167,510.92	157,734.23
Emery P. L.	55,995.64	54,627.01
Paragon Dev.	26,293.82	28,094.42
Pgh. P. L.	5,710.36	5,520.99
Stoll Oil Ref.	13,632.37	14,258.01
Total	1,882,695.38	1,815,803.91
Daily average	62,756.51	58,574.32

Note—Indiana Refining Co. also reported other receipts of 416,243.11 bbls. Paragon Refining Co. had other receipts of 171,247.26 bbls. Paragon Development had other receipts of 1,492.08 bbls. Pure Oil had other receipts of 21,717.04 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for June and July:

	June, '27	July, '27
Nat. Transit	307,649.33	330,044.32
S. W. Pa. P. L.	317,891.14	363,850.84
Eureka P. L.	181,937.70	183,351.51
Buckeye P. L. (Macksburg)	165,198.17	175,567.01
Buckeye P. L. (Cleve)	971.56	971.94
Buckeye P. L. (Lima, etc.)	930,510.48	954,040.89
Indiana P. L.	975,616.39	1,038,598.35
Cum'land P. L.	150,959.91	139,659.15
N. Y. Transit	315,171.90	364,628.63
Northern P. L.	187,632.30	200,019.17
Tidewater P. L.	139,216.41	106,016.04
Pure Oil	163,634.33	165,167.59
Emery P. L.	54,410.09	57,048.51
Paragon Ref.	171,015.11	176,876.31
Indian Ref.	394,690.00	400,446.10
Paragon Dev.	29,986.63	29,982.32
Pgh. P. L.	6,384.84	5,593.34
Total	4,493,146.29	4,691,862.02
Daily average	149,771.54	151,350.39

Gross Stocks

The gross stocks held by various pipe lines in the oil-producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky, at the close of June and July:

	June, '27	July, '27
Nat. Transit	1,150,482.45	1,137,052.50
S. W. Pa. P. L.	705,827.92	684,337.22
Eureka P. L.	1,760,893.31	1,859,908.44
Buckeye P. L. (Macksburg)	450,027.81	407,391.62
Buckeye P. L. (Cleve)	38,248.14	36,605.62
Buckeye P. L. (Lima, etc.)	4,303,614.65	4,280,952.96
Indiana P. L.	585,161.78	618,014.38
Cum'land P. L.	581,519.53	579,849.28
Southern P. L.	406,472.60	433,210.34
N. Y. Transit	513,088.14	419,558.02
Northern P. L.	509,881.48	487,732.61
Pure Oil	397,272.76	412,670.10
Emery P. L.	9,961.99	7,901.54
Paragon Ref.	24,515.54	18,557.87
Indian Ref.	45,531.36	58,707.96
Paragon Dev.	6,969.48	6,514.28
Pgh. P. L.	4,104.27	4,163.23
Total	11,493,673.21	11,453,127.97
Increase	134,291.93	*40,545.24

*Decrease.

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of June and July showing the gross stocks of the above fields:

	June, '27	July, '27
Penna.	4,097,743.11	4,190,178.95
Lima	939,796.66	1,006,906.85
Kentucky	1,190,128.89	1,129,805.76
Mid-Continent	5,233,298.85	5,079,649.41
Illinois	32,706.30	46,587.00
Total	11,493,673.21	11,453,127.97

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1924	1925	1926	1927
Jan.	62,638	56,831	55,630	56,209
Feb.	68,023	60,606	60,394	61,298
March	68,721	60,575	61,644	63,247
April	71,058	63,062	63,019	60,337
May	63,942	59,217	60,580	60,284
June	63,230	61,270	64,131	62,757
July	64,208	62,639	63,206	58,574
Aug.	59,942	59,686	61,815	.....
Sept.	62,930	62,510	64,639	.....
Oct.	64,976	60,995	62,704	.....
Nov.	56,282	59,350	61,774	.....
Dec.	55,814	57,974	58,755	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima, and other fields for the past your years:

	1924	1925	1926	1927
Jan.	145,518	157,889	156,056	141,227
Feb.	148,732	160,863	159,488	138,534
March	147,098	154,591	150,239	133,777
April	147,611	151,429	152,371	140,227
May	134,997	146,995	160,998	144,894
June	143,010	149,467	160,257	149,772
July	124,187	161,338	160,945	151,350
Aug.	123,120	161,730	151,929	.....
Sept.	127,325	156,719	158,915	.....
Oct.	123,170	145,388	161,132	.....
Nov.	124,400	143,582	152,668	.....
Dec.	151,392	150,162	136,428	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1925	1926	1927
Jan.	11,353,276	9,859,170	9,716,0
Feb.	11,192,924	9,579,354	10,119,1
March	11,158,297	9,438,292	10,794,9
April	11,062,082	9,805,851	11,112,2
May	11,207,562	9,531,757	11,359,3
June	11,093,796	9,585,904	11,493,6
July	11,067,453	9,734,687	11,453,1
Aug.	10,974,481	9,668,947	.....
Sept.	10,781,753	9,433,732	.....
Oct.	11,086,850	9,269,806	.....
Nov.	11,068,158	9,257,667	.....
Dec.	10,458,445	9,454,512	.....

Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and accounted in the stocks and averages reported above.

	Runs	Shipments	Stocks
1926—			
July	3,025.86	4,075.11	13,809.1
August	2,886.59	2,121.21	14,574.5
Sept.	2,788.18	3,373.06	13,986.6
Oct.	2,991.86	2,307.75	14,671.3
Nov.	2,810.60	1,664.55	15,817.3
Dec.	2,847.53	5,561.11	13,103.7
1927—			
Jan.	2,641.54	1,470.42	14,274.8
Feb.	2,764.30	1,082.82	15,956.2
March	2,587.20	1,878.56	16,664.9
April	2,834.23	1,512.65	17,986.5
May	2,768.47	539.29	20,215.7
June	2,946.29	664.40	22,497.6
July	3,153.39	1,276.61	24,374.3

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, Aug. 1	1,996,959.3
Runs from wells	586,760.8
Other receipts	363,319.1
Regular deliveries	448,726.3
Other deliveries	556,098.3

The amount of Illinois oil run by the Tidewater Pipe Co. in July was 27,140.35 bbls. and deliveries were 36,175.67 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

1926—	Runs	Deliveries
July	713,490.66	490,092.3
August	701,795.92	555,766.3
September	688,798.66	516,083.3
October	681,648.96	531,467.3
November	651,263.33	498,439.3
December	668,909.58	587,947.3
1927—		
January	621,421.03	530,085.3
February	595,831.16	476,760.3
March	727,593.91	554,947.4
April	593,225.97	444,818.4
May	728,759.40	543,192.4
June	640,975.85	532,217.3
July	613,901.30	484,902.3

Tidewater Pipe Co., Ltd., also delivered in July, 138,158.92.

AVERAGE DAILY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF COAST PORTS

Average bbls. per day—	ATLANTIC PORTS						GULF COAST PORTS					
	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total All Ports
April	12,667	4,367	47,667	15,100	13,300	93,100	.....	.....	.....	.....	.....	93,1
May	10,452	7,645	18,387	9,226	6,226	51,935	.. ..	.. ..	.....	.....	.....	51,9
June	25,567	11,233	48,833	17,367	17,367	120,367	.....	.....	.....	.....	.....	120,3
July	13,484	17,290	33,065	9,129	5,452	78,419	.....	.....	.....	.....	368	79,3

AVERAGE DAILY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Average bbls. per day—	ATLANTIC PORTS						GULF COAST PORTS					
	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total All Ports
April	22,700	9,033	62,033	6,067	26,567	126,400	5,067	18,033	.....	.....	23,100	149,5
May	21,032	9,807	93,452	7,774	23,580	155,645	1,807	30,612	1,936	.....	34,355	190,0
June	18,167	9,700	83,867	10,900	16,567	139,200	2,000	31,800	.....	.....	33,800	173,0
July	22,226	10,387	80,194	7,194	28,710	158,710	3,226	25,064	806	...	29,096	187,8

GROSS PRODUCTION OF THE UNITED STATES FOR 12 MONTHS

(IN BARRELS)

1926—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mountains	Eastern Fields	Total
July:	Month	18,743,199	14,657,482	13,983,759	3,582,267	5,019,892	2,173,813	3,336,664	3,420,000	64,917,0
	Daily average	604,619	472,822	451,089	115,575	161,932	70,123	107,634	110,323	2,094,0
August:	Month	18,765,089	14,618,236	17,093,586	3,681,436	4,878,191	2,190,739	3,467,697	3,339,500	68,024,4
	Daily average	605,325	471,556	551,406	118,756	157,361	73,896	111,538	107,726	2,194,2
September:	Month	18,104,954	14,466,510	17,580,100	3,460,060	4,603,230	2,079,840	3,141,123	3,330,000	66,755,8
	Daily average	603,498	482,217	586,003	115,002	153,441	69,328	104,704	111,000	2,225,1
October:	Month	18,966,058	15,720,689	19,001,388	3,714,627	4,625,138	2,166,659	3,071,720	3,398,000	70,664,1
	Daily average	611,808	507,119	612,948	119,827	149,198	69,889	99,088	109,613	2,279,4
November:	Month	19,173,128	16,876,950	18,593,160	3,593,490	4,299,480	2,054,911	2,842,587	3,216,000	70,649,7
	Daily average	639,104	562,565	619,772	119,783	143,316	68,497	94,752	107,200	2,354,9
December:	Month	20,276,950	17,382,908	19,753,591	3,664,156	4,266,189	2,018,734	2,658,301	3,313,000	73,533,8
	Daily average	654,095	576,868	637,212	117,876	137,619	65,120	85,752	106,871	2,381,4
1927—										
January:	Month	20,184,872	19,035,426	18,605,363	3,769,879	4,076,469	1,905,570	2,620,303	3,332,500	73,530,2
	Daily average	651,125	614,046	600,173	121,609	131,499	61,470	84,203	107,500	2,371,9
February:	Month	17,982,711	19,752,348	16,483,712	3,352,076	3,574,256	1,784,104	2,386,135	3,007,200	68,321,5
	Daily average	642,240	705,441	588,704	119,717	127,652	63,718	85,183	107,400	2,440,0
March:	Month	19,835,724	22,480,921	18,232,617	3,675,143	3,853,920	2,032,982	2,476,798	3,335,800	75,923,9
	Daily average	639,862	726,191	588,149	118,553	124,320	65,580	79,574	105,100	2,449,1
April:	Month	19,493,825	22,208,130	17,801,140	3,516,930	3,378,240	1,994,330	2,416,770	3,474,000	74,482,3
	Daily average	649,879	740,271	593,371	117,231	112,608	66,491	87,193	115,800	2,482,7
May:	Month	19,506,054	23,258,443	19,539,083	3,794,314	3,493,669	1,935,175	2,742,588	3,467,000	77,646,3
	Daily average	629,228	750,273	630,293	119,494	112,699	62,425	88,471	111,839	2,504,7
June:	Month	19,181,442	22,830,330	18,399,810	3,437,580	3,365,760	1,880,820	2,592,437	3,330,000	75,613,1
	Daily average	639,381	761,011	613,327	114,586	112,192	62,694	86,414	111,000	2,500,4
Total 12 months		230,213,997	223,733,393	215,067,209	43,181,963	49,434,434	24,217,577	33,941,133	39,963,000	859,757,8

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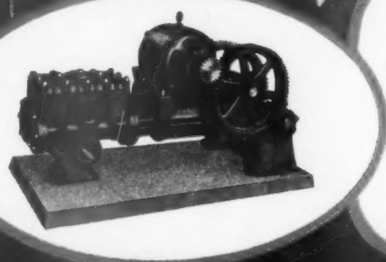

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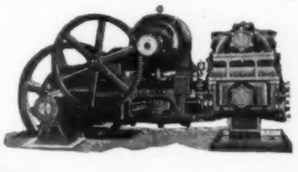

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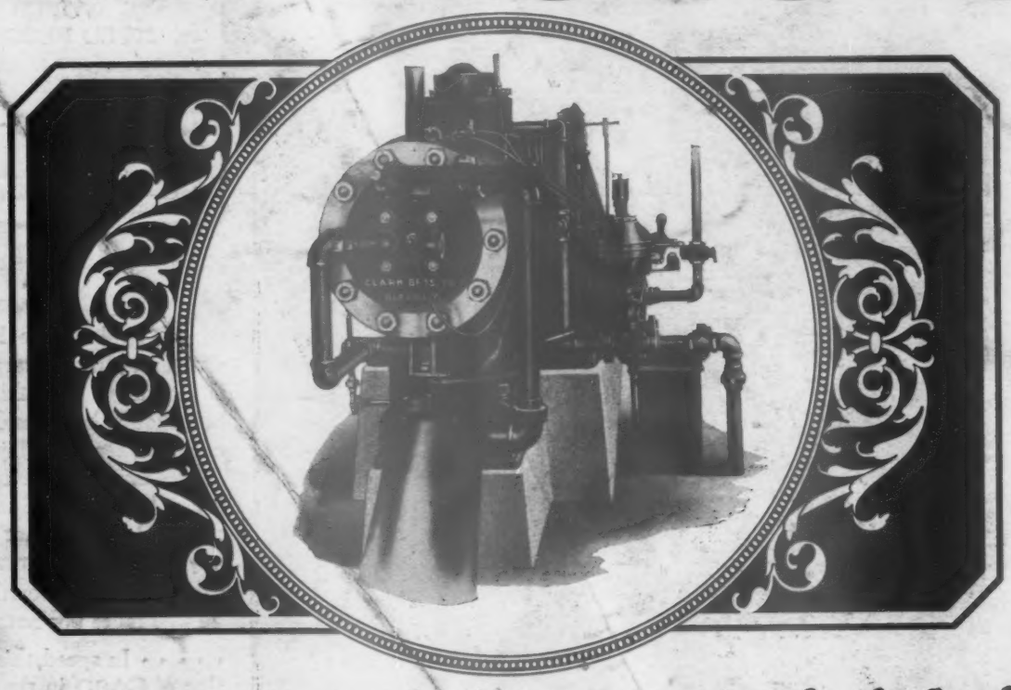

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